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Cambridge University of Astronomical Observing

STORAGE

ASTRONOMICAL  
OBSERVATIONS

MADE AT THE  
OBSERVATORY OF CAMBRIDGE

BY

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VOL. XIII.

FOR THE YEARS 1840 AND 1841.



CAMBRIDGE

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## P R E F A C E.

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THE Observations of 1840 and 1841 contained in this Volume, as well as those of the four preceding years, were all taken either by myself or my two assistants, Mr Baldrey and Mr Glaisher. Mr Baldrey observed with the Transit only, Mr Glaisher with the Mural Circle and the Northumberland and Five-foot Equatoreals, and when my assistants were absent on vacation, and as other occasions required, I observed with each of the Instruments in turn. In this manner we were able to maintain to the close of 1839 a continued series of observations of the Sun, Moon, and all the Planets on the meridian, with scarcely any interruptions excepting those arising from the state of the weather, and from the necessity of omitting observations between the hours of two and six in the morning. It was found, however, especially after the Northumberland Telescope came into use, that the reduction of the numerous observations which this plan required, could not be made to keep pace with the rate of observing. On this account some curtailment of the scale of operations was made in 1840. The planets Jupiter, Saturn, and Uranus were observed only when they culminated within two hours before or after the Moon, and observations of Mars, which, however, were not practicable excepting in the months of November and December, were omitted.

For the same reason as that assigned for the delay of the publication of the Observations of 1839 in the Preface to the Volume for that year, an interruption of the regular course of observing occurred in the early part of 1841, and it was thought advisable still farther to contract the amount of meridian observations. Accordingly observations of the Sun and Moon were suspended, and only three planets were observed, viz., Vesta, Pallas, and Ceres, which in their oppositions of 1841 were conveniently situated for observing in this latitude. The observations of 1841 have been included in the same Volume with those of 1840 on account of their number being considerably below the average of former years.

The meridian observations of 1841 embrace a large number of double stars, whose distances and angular positions had been previously observed with the Northumberland Telescope. It has been an object with me so to conduct the two kinds of observations that the determination of the position of a double star in the heavens may be made at an epoch not far removed from the determination of the relative position of the components.

The Equatorial Observations of 1840 and 1841 are principally differential observations of the Right Ascension and North Polar Distance of Galle's Second Comet; similar observations of Pallas; differential observations of the North Polar Distance of Mars; measures of apparent diameters; and occultations of stars by the Moon. Besides these, observations of the distances and angular positions of double stars were carried on in both years, which, with those of former years, it is proposed to publish in a separate Volume.

All the observations of this Volume have been reduced with strict attention to accuracy, and the calculations have all been scrupulously examined.

J. CHALLIS.



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For a list of ERRATA and CORRIGENDA see at the end of the Introduction.

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# CAMBRIDGE OBSERVATIONS.

## INTRODUCTION.

THE *Instruments and methods of observing* employed in the Observations recorded in this Volume, are described in the Introductions to the Observations of 1838 and previous years. The following pages contain explanations of the tabulated Observations and such occasional notices as could not be given at length in the body of the work, together with an account of the constants and formulæ used in the Calculations.

### OBSERVATIONS OF 1840.

#### I. *Transits as observed, and Calculation of Apparent Right Ascensions.* Pages 1—77.

The first division of the tabular portion of the work is allotted to the Transit Observations and the Calculation of Apparent Right Ascensions. The *left-hand* pages record the transits as they were observed, with no other results of calculation than the corrections for reducing the mean of the observed times of transit over part of the wires, to the time of transit over the mean of all the wires.

The *first column* contains the day of the month, supposed always to commence with the Sun's meridian passage.

The *second column* contains the names of the objects observed. With respect to nomenclature the following rule has been adopted. Stars contained in the Nautical Almanac have the same names here given them as in that work. Stars in the Astronomical Society's Catalogue and not in the Nautical Almanac, are named, in preference, by the letters in that Catalogue attached to the name of the constellation; next, by Flamsteed's numbers attached; and in default of these, by merely the numbers of the Catalogue. The hour and number of Piazzi's Catalogue are used if the star is not in the Astronomical Society's Catalogue. Double stars in Struve's *Catalogus Novus*, if not found in any of the above mentioned works, are designated by the letter  $\Sigma$  prefixed to the number of that Catalogue. All other stars are named by their approximate North Polar Distances.

In the *second column* are also stated (in small type) such circumstances of the observations as could be expressed briefly: which are principally those depending on atmospheric causes. Longer remarks, and such as relate to mistakes in observing, are introduced at the bottom of the page. To give an opportunity of judging of the weight due to individual observations, it was thought right to omit the mention of no circumstance which seemed in any way to affect an observation, especially when the object observed was the Sun, Moon, or a Planet.

In observing a double star, the brighter of the two is taken. If the stars are of nearly equal magnitude, the one observed is distinguished as *preceding* or *following*.

The *seven succeeding columns* contain the times, by the Transit clock, of passage over the seven wires. The hour and minute in the seventh of these columns always refer to the wire last observed.

When, as not unfrequently happens from atmospheric and accidental causes, the times of transit across all the wires cannot be observed, a correction is necessary for reducing the mean of the observed times to the time of transit over the mean of all the wires. This reduction is effected by adding (with the proper sign) to the mean of the observed times, the sum, divided by the number of wires observed, of the distances in time of the omitted wires from the mean of all.

The system of wires was inserted at the beginning of 1839. The following table was computed in the manner explained in p. xiv. of the Introduction to the Volume for 1837, from the observations of Polaris and  $\delta$  Ursæ Minoris made in 1839 between Aug. 1 and Nov. 12, and is used throughout the year 1840. The wires are distinguished by the letters *A, B, C, D, E, F, G*; and stars above the Pole pass them in this order when the illuminated end of the axis is East.

*Interval in time of each wire from the mean of all.*

	For Equatoreal Stars,	For $\delta$ Ursæ Minoris Declination = $86^{\circ}.35' + n''$ .	For Polaris Declination = $88^{\circ}.27' + n''$ .
	$^{\circ}$	$^{\circ}$	$^{\circ}$
A .....	-40,289	-11.16,30 - $n \times 0,055$	-24.52,39 - $n \times 0,268$
B .....	-26,863	-7.30,82 - $n \times 0,037$	-16.33,96 - $n \times 0,178$
C .....	-13,668	-3.49,35 - $n \times 0,019$	-8.25,40 - $n \times 0,091$
D .....	+0,044	+0,74	+1,63
E .....	+13,467	+3.45,97 + $n \times 0,018$	+8.17,96 + $n \times 0,089$
F .....	+26,933	+7.32,00 + $n \times 0,037$	+16.36,57 + $n \times 0,179$
G .....	+40,376	+11.17,76 + $n \times 0,055$	+24.55,63 + $n \times 0,269$

Besides the cosecant of N.P.D., by which the numbers for equatoreal stars are multiplied when the N.P.D. is not very small, a factor is used for the Sun and Planets, which is deduced from the horary variation of their R.A. given in the Nautical Almanac. The multiplier for the Moon takes account of the variation of R.A. as affected by parallax, and is calculated from the expression

$$\frac{3600 + I}{3600} \times \frac{\sin. \text{Moon's geocentric Z.D.}}{\sin. \text{Moon's apparent Z.D.}} \times \text{cosecant of N.P.D.},$$

where *I* is the increase of the Moon's R.A. in passing over  $1^{\text{h}}$  of terrestrial longitude, given under the head of Moon-culminating Stars in the Nautical Almanac.

The first limb of Jupiter and the first limb of Saturn's Ring are usually observed at the wires *A, C, E*, and *G*; and the second limbs at the wires *B, D*, and *F*. The observation of each limb is corrected to the mean of all the wires by the foregoing table.

The corrections to the mean of all for wires omitted occupy the *tenth column*.

The *eleventh column* contains the initial of the observer's name. The observations marked *C* are by myself, those marked *B* by Mr Baldrey, and those marked *G* by Mr Glaisher.

The space immediately below the columns contains notices of the position of the instrument and the order of the wires, together with the times of reversing and levelling it, and of putting forward the minute hand of the clock.

The concluded times of transit over the mean of the seven wires, as given by the clock, are placed in the *first column* of the *right-hand* pages. The succeeding columns contain the elements of the calculation by which the Apparent Right Ascensions are inferred from these times; which is done by applying corrections for *Error of Collimation*, *Level Error*, *Meridian Error*, and *Clock Error*. The methods of obtaining these corrections will here be severally stated in the order of their application.

*Error of Collimation.*—A wooden cross in the form of X, placed so that the vertical micrometer-wire can be brought to bisect its acute angles, serves as a southern mark for

determining the error of collimation. It is fixed on the tower of Grantchester church, at the distance of about  $2\frac{1}{2}$  miles, and its angular distance West of the meridian is about  $14''$ . To avoid any error that may arise from a change of position of the axis of the instrument by the reversion, a northern mark is also used. Instead of a fixed northern mark, for which there is no convenient object, a small transit instrument is put up as a horizontal collimator in the northern opening for the shutters, and the micrometer-wire is applied to a selected point of the image of one of its wires. This is found in practice to answer well enough the required purpose.

The following observations were made for the determination of the collimation error.

1840. Jan. 9, 23 $\frac{1}{2}$ <sup>h</sup>. The Transit was reversed under favorable circumstances.

*Illuminated End of Axis West.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	$24,239$
..... 8 ..... bisecting South mark .....	$25,588$
..... 6 ..... bisecting North mark .....	$26,093$

*Illuminated End of Axis East.*

Mean of 8 readings, micrometer-wire bisecting North mark .....	$22,455$
..... 7 ..... bisecting South mark .....	$23,234$
..... 6 ..... coincident with <i>D</i> .....	$24,228$
Reading for line of collimation by South mark.....	$24,411$
..... North mark.....	$24,274$
Reading for true line of collimation .....	$24,342$
Reading for <i>D</i> .....	$24,228$

As the micrometer readings increase in going from the illuminated end of the axis, stars entering from the West come to *D* after passing the true line of collimation. Hence the error of collimation of *D* in micrometer revolutions is  $-0,114$ , and in arc  $-1'',94$ , one micrometer revolution being equal to  $17'',06$ . By the Table in p. ii. it appears that the mean of all the wires is more westward than *D* by  $0,044$ , or  $0'',66$ . Hence the error of collimation of the mean of the wires, inclusive of the correction  $-0'',18$  for diurnal aberration is  $-1'',94 + 0'',66 - 0'',18$ , or  $-1'',46$ .

Error of collimation before reversion =  $+1'',94 - 0'',66 - 0'',18 = +1'',10$ , which agrees closely with the determination next preceding on Sept. 19, (1839).

1840. May 7, 6<sup>h</sup>. Transit reversed. Circumstances not good. The cross was clear but waved considerably. After the reversion the collimator's wire was seen very indistinctly, on which account a large number of bisections were made.

*Illuminated End of Axis East.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	$24,215$
..... 6 ..... bisecting South mark .....	$23,414$
..... 8 ..... bisecting North mark .....	$25,887$

*Illuminated End of Axis West.*

Mean of 10 readings, micrometer-wire bisecting North mark .....	$23,166$
..... 5 ..... bisecting South mark .....	$24,862$
..... 6 ..... coincident with <i>D</i> .....	$24,207$
Reading for line of collimation by South mark .....	$24,138$
..... North mark .....	$24,326$
Reading for true line of collimation .....	$24,332$
Reading for <i>D</i> .....	$24,211$

Since the reading for *D* is less than that for the true line of collimation, the error of collimation of *D* (illuminated end West) is  $+0,121$ , or  $+2'',06$ . Hence the error of collimation of the mean of the wires, inclusive of the correction for diurnal aberration, is  $-1'',22$ .

Error of collimation before reversion =  $-1''.58$ , which agrees nearly with the value obtained by the reversion on Jan. 9. In preparing for levelling on Feb. 11, the Telescope was twice struck by the level on the West side towards the object end. It does not appear, however, that the collimation error changed in consequence, and as there was no abrupt change of meridian error, it may be presumed that the blows had no injurious effect.

There is so much difference between the above readings for the line of collimation by the North and South marks, that it is clear the axis must have shifted by the reversion. This circumstance, which does not affect the accuracy of the determination of collimation error, will be adverted to farther on.

1840. July 28, 4<sup>h</sup>. Transit reversed under favorable circumstances. The cross was clear and steady, and the collimator's wire well seen.

*Illuminated End of Axis West.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	<sup>r.</sup> 24,218
..... 8 ..... bisecting South mark .....	25,130
..... 6 ..... bisecting North mark .....	19,239

*Illuminated End of Axis East.*

Mean of 8 readings, micrometer-wire bisecting North mark .....	<sup>r.</sup> 28,891
..... 8 ..... bisecting South mark .....	23,874
..... 6 ..... coincident with <i>D</i> .....	24,218
Reading for line of collimation by South mark.....	24,502
..... North mark.....	24,065
Reading for true line of collimation .....	24,284
Reading for <i>D</i> .....	24,218

Hence the error of collimation of *D* (illumination East) =  $-0''.066 = -1''.13$ ; and the error of collimation of the mean of the wires with the correction for diurnal aberration =  $-0''.65$ .

The axis appears to have altered its position by the reversion as on May 7.

1840. Oct. 26, 23<sup>h</sup>. The Transit was reversed by Mr Glaisher. The cross was steady and clear, but the collimator's wire very indistinct.

*Illuminated End of Axis East.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	<sup>r.</sup> 24,183
..... 6 ..... bisecting South mark .....	23,122
..... 8 ..... bisecting North mark .....	22,320

*Illuminated End of Axis West.*

Mean of 8 readings, micrometer-wire bisecting North mark .....	<sup>r.</sup> 26,194
..... 8 ..... bisecting South mark .....	25,250
..... 6 ..... coincident with <i>D</i> .....	24,180
Reading for line of collimation by South mark.....	24,186
..... North mark.....	24,257
Reading for true line of collimation .....	24,222
Reading for <i>D</i> .....	24,182

Hence the error of collimation of *D* (illumination West) is  $+0''.040$ , or  $+0''.68$ ; and the error of collimation of the mean of the wires with the correction for diurnal aberration =  $-0''.16$ .

The axis did not shift to the same amount as on May 7 and July 28.

1840. Dec. 21, 3<sup>h</sup>. Transit reversed. Before reversion the cross was clear but a little unsteady; after the reversion it was very obscure. The collimator's wire was pretty well seen.

*Illuminated End of Axis West.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	24,207
..... 6 ..... bisecting South mark .....	25,434
..... 6 ..... bisecting North mark .....	23,597

*Illuminated End of Axis East.*

Mean of 6 readings, micrometer-wire bisecting North mark .....	23,777
..... 8 ..... bisecting South mark .....	23,863
..... 6 ..... coincident with <i>D</i> .....	24,206
Reading for line of collimation by South mark .....	24,648
..... North mark .....	23,687
Reading for true line of collimation .....	24,168
Reading for <i>D</i> .....	24,206

Hence the error of collimation of *D* (illumination East) = + 0",038, or + 0",65; and the error of collimation of the mean of the wires with the correction - 0",18 for diurnal aberration = + 1",13.

The change of position of the axis as indicated by the difference of readings for line of collimation by the South and North marks, is even greater than on May 7 and July 28.

The values of collimation error adopted in the reduction of the Transits, and the limits within which they are used, are mentioned in the space immediately below the columns of the right-hand pages.

The correction to the observed time of each Transit is in seconds of time,

$$\frac{1}{15} \times \text{collimation error} \times \cos c. \text{ N.P.D.},$$

the N.P.D. being considered negative when the star passes below the pole.

*Level Error.*—The angular deviation of the axis of revolution of the Transit from a horizontal plane is found by applying to the pivots a spirit-level, furnished with a cross-level adjustment, and with graduated scales for reading off the positions of the extremities of the bubble. It is the practice to reverse the level five times, and thus obtain six eastern and six western readings, the scales being first disposed in positions convenient for reading off, which they retain during the whole of the operation. In the graduation of each scale the numbers increase in the direction from the middle of the bubble towards the extremity. Hence the algebraic *excess* of the sum of the western above the sum of the eastern readings, divided by the whole number of readings, is the measure, in degrees of the scales, of the *elevation* of the west end of the axis above a horizontal plane. This is converted into angular measure by multiplying by 1",3, the value of 1° of the scales. In consequence of the discussion of the relative size and form of the pivots given in pages vi. and vii. of the Introduction to the Observations of 1839, the correction - 0",12 or + 0",12 is added according as the illuminated end of the axis is West or East. For Polaris and  $\delta$  Ursæ Minoris the corrections are - 0",22 and + 0",22. Since stars above the pole require a positive correction to their time of transit when the west end of the axis is the more elevated, the result thus obtained is the Level Error with its proper sign; which, together with the time of using it, is inserted in the space below the columns of the right-hand pages.

The numerical correction applied to the observed time of each transit, previously corrected for error of collimation, is, in seconds of time,

$$\frac{1}{15} \times \text{level error} \times \cosine \text{ of Zen. Dist. } \times \csc. \text{ of N.P.D.},$$

the N.P.D. being negative when the star is below the pole.

The levelling is commonly performed once in a week, and the determination is used from the third or fourth day previous. The time of levelling, and the number of levellings (if more than one) from which the level error is obtained, are stated in the space below the columns of the left-hand pages.

As the level error exhibited several irregularities which require explanation, I have subjoined a list of all the level errors obtained in 1840, with the times of levelling, and position of the Instrument.

*Level Errors in 1840.*

Time of Levelling.	Level Error.	Illum. End of Axis.	Time of Levelling.	Level Error.	Illum. End of Axis.	Time of Levelling.	Level Error.	Illum. End of Axis.
Jan. 6. <sup>A</sup> 2	+ 0,73	West	April 30. <sup>A</sup> 2	+ 1,54	East	Aug. 19. <sup>A</sup> 1	+ 4,68	East
9. 23	+ 1,00	—				24. 2	+ 4,19	—
10. 1	+ 2,24	East	May 7. 2	+ 0,94	—	31. 2	+ 1,91	—
13. 2	+ 2,17	—	7. 6	+ 1,38	—			
20. 2	+ 2,03	—	7. 7	(+ 4,82)	West	S pt. 8. 2	+ 1,59	—
27. 2	+ 1,62	—	14. 2	+ 2,22	—	17. 2	+ 1,52	—
			21. 3	+ 0,43	—	23. 2	+ 1,33	—
			28. 2	+ 1,22	—	30. 2	+ 2,29	—
Feb. 11. 3	+ 1,84	—						
11. 3	+ 1,99	—	June 4. 2	+ 0,14	—	Oct. 6. 2	+ 2,29	—
11. 3	+ 1,89	—	11. 2	+ 0,65	—	13. 2	+ 2,43	—
11. 4	+ 2,30	—	17. 2	+ 0,05	—	23. 1	+ 2,69	—
22. 4	+ 3,93	—	24. 2	- 0,22	—	26. 4	+ 2,32	—
						26. 23	+ 2,93	—
Mar. 2. 2	+ 2,50	—	July 6. 2	+ 0,61	—	27. 0	+ 1,61	West
10. 2	+ 2,40	—	14. 2	+ 0,36	—			
16. 2	+ 2,23	—	21. 2	+ 0,19	—	Nov. 5. 3	+ 1,41	—
25. 3	(+ 5,68)	—	28. 4	+ 0,01	—	11. 2	+ 1,26	—
27. 2	+ 2,82	—	28. 5	(+ 7,99)	East	20. 2	+ 1,05	—
			28. 6	(+ 7,10)	—	26. 2	+ 1,38	—
April 2. 2	+ 2,95	—	28. 21	+ 6,33	—			
9. 2	+ 2,04	—	31. 7	+ 5,84	—	Dec. 2. 2	+ 2,00	—
15. 2	+ 2,40	—				9. 3	+ 2,25	—
24. 2	+ 2,33	—	Aug. 6. 6	+ 6,37	—	21. 2	+ 2,16	—

By the reversion at noon of Jan. 10 it appears that the elevation of the West end of the axis was greater when the illuminated end was East than when it was West. The same thing happened Oct. 27. This has been the case to a less amount in many previous reversions. (See Introduction of 1839, p. vi). Some portion of the difference may possibly be owing to an irregular wearing of the pivots at the parts where the Ys of the level are applied.

On Feb. 11 four levellings were taken in different positions of the Telescope, and the Ys of the level were applied to different parts of the pivots in each position. The first and third were taken with the Telescope horizontal and the object-glass looking Southward and Northward: the second and fourth with the object-glass directed  $45^\circ$  from the Zenith towards the South and towards the North respectively. The immediate results of the four levellings were + 1",72, + 2",43, + 1",77, + 2",74. The second and third having been corrected by - 0",56, and each by + 0",12, (See Introd. of 1839, p. vii) the mean of the four corrected results viz. + 2",00, was adopted for level error.

Before the levelling of Feb. 22 the counterpoise of the East pier was brought to bear on the pivot, which it had not done before.

The levelling of March 25 was performed shortly after an astronomical class had been in the Transit Room, and it was subsequently discovered that the screws at the feet of the level had been moved so as to prevent the Ys resting on the pivots. The result is therefore rejected.

A great change of level error occurred at the reversion of the Instrument on May 7, and again at that of July 28, but not at the reversion of Oct. 27. The cause of this was discovered March 3 (1841) to lie in the action of the *West* counterpoise. The screw by which this counterpoise is prevented acting on the pivot must have been turned between the reversions of Jan. 10 and May 7, so as to bring the counterpoise to bear on the pivot, though no memorandum was made of any such alteration. The weight on the counterpoise was too great, and the pivots of the lever by which it acts had become rusty; the consequence of which appears to be that the West pivot of the Transit axis was prevented descending at once to the Y. It is probable also that the lever may have been so placed that



the two friction wheels pressed unequally on the pivot. After the reversion of May 7 the pivot came into contact with the Y apparently between May 14 and May 21, and after that of July 28, on some day between Aug. 24 and Aug. 31. The level error obtained immediately after the reversion of May 7 is not made use of, there being no observations till May 18. Soon after the reversion of July 28 three levellings were taken, the last of which only is used. The mean of the level errors of Aug. 6 and Aug. 19 is used from Aug. 11 on account of the gradual change which may be supposed to have gone on in the interval. By a consideration of the Transit observations of Aug. 26 and 27 and the change of meridian error, it appears that a sudden change in the position of the axis occurred in the interval between the observations of those days, on which account the level error obtained Aug. 31, viz.  $+1''.91$ , is used from Aug. 27. The observations between July 28 and Aug. 27 must be in some degree affected by the unsteadiness of the position of the axis.

The two level errors of Oct. 26 give a mean result nearly coinciding with the level error of Oct. 23, which is therefore continued to the time of the reversion.

At the reversion of the Transit on Dec. 21, the same circumstance occurred as on May 7 and July 28, on account of which and the great length of the bubble from low temperature, no levelling was taken after the reversion. Observations having been suspended on Dec. 23, the Transit was not again levelled till Feb. 22, 1841, when the level error was found to be  $+0''.52$ . But before this levelling the screws for the level-adjustment were turned through three intervals to raise the East end of the axis. By former recorded movements of the screws it appears that one interval corresponds to a difference of level equal to  $4''.06$ . Hence the change of level error was  $12''.18$ , and it is presumed that the level-error after the reversion of Dec. 21 was  $+12''.18 + 0''.52$ , or  $+12''.70$ . This value is used for the few transits that were taken on and after Dec. 21.

*Meridian Error.*—The angle by which the plane of motion of the true line of collimation, (supposing the level error corrected,) deviates from the plane of the meridian, has been generally found by means of two or more transits of Polaris or  $\delta$  Ursæ Minoris, alternately above and below the pole, and as often as possible, consecutive. The following is the mode of conducting the calculation for this purpose.

Let  $T$  represent the time in which the circumpolar star describes the portions of its small circle which lie between the plane of the meridian and the vertical plane in which the axis of the Telescope is now supposed to move. If the star had no motion in R.A. and the clock no rate, the time  $T$  would be the difference between  $12^h$  and the interval from one transit to the next, as inferred from the observed times of transit corrected for collimation and level errors. The change of the star's R.A. and the clock's rate are taken account of by adding to the second of the observed transits, when two only are employed, the loss of the clock in  $12^h$ , and subtracting the increase of the star's R.A. in the same time. The clock's loss has usually been derived from the mean difference of the uncorrected transits of the same stars on two days near the times of observation of the circumpolar star, and the change of R.A. is taken from the Nautical Almanac. These corrections being attended to, the rule employed for finding  $T$  is to subtract algebraically the clock time (corrected for errors of collimation and level) of the *inferior* transit from that of the *superior*, the latter being first increased or diminished by  $12^h$ , according as the star made use of is Polaris or  $\delta$  Ursæ Minoris. The result is positive when the line of collimation deviates to the East of the meridian on the South side of the zenith, and negative when it deviates to the West. Also the observed time of transit of a star on the South side of the zenith requires a positive correction for meridian error in the former case, and a negative correction in the latter. Hence the sign of the meridian error is the same as that of  $T$  obtained as above stated. The same rule applies when the two transits are not consecutive, provided the second be corrected as before in proportion to the interval between them.

When three consecutive transits of Polaris or  $\delta$  Ursæ Minoris have been obtained, it is not necessary to correct for the clock's rate or the change of the star's R.A. For assuming these to be uniform in the interval between the first and third transits, and the times of transit to remain uncorrected, the remainders obtained by subtracting, according to the above rule, either the middle term from the two extremes, or the two extremes from the middle,

will be one in defect and the other in excess by the same quantity, and half their sum will be  $T$ .

The time  $T$  being known, the meridian error in seconds of space is,

$$\frac{15 T}{2} \times \tan *'s N.P.D. \times \text{cosec. of colatitude.}$$

The multiplier of  $T$  for Polaris is  $\frac{1}{3,038}$  and for  $\delta$  Ursæ Minoris  $\frac{1}{1,371}$ .

When more than three consecutive transits have been obtained, a value of the meridian error is deduced from the first, second, and third; another from the second, third, and fourth; and so on. If the different values are nearly equal, the mean of all is employed; when they differ considerably, they are either used separately or in groups.

In several instances the meridian error has been determined by single transits of the circumpolar star compared with transits of known stars. By deriving from the tabular R.A. of the known star, and the observed time of its transit corrected for errors of level and collimation, an expression for the error of the clock, in which the meridian error is the only unknown quantity, and then equating it to a like expression derived from the tabular R.A. and transit of the circumpolar star, after correcting for the clock's loss in the intervening time, the value of the meridian error is deduced. In all the instances in which this method has been employed, (excepting those of Aug. 8, 27, and Dec. 13) the adopted meridian error is the mean of two or more results obtained on different days near each other. The R.A. of the circumpolar star concluded from the observations may therefore be considered in some degree as independent determinations.

The meridian errors of 1840 exhibit no irregularities that require mentioning, excepting those that occurred at the same time with the irregularities of level error, the causes of which have already been explained. After the reversion of May 7 the meridian error was unsteady for a much longer time than the level error. The most probable reason that can be given for this is, that after the pivot came into contact with the Y, the axis pressed unequally on the friction wheels, or was in contact with only one of them, and that a horizontal strain was consequently produced, the effect of which, on account of the large amount of counterpoise, might be very considerable. I am unable to say what was the immediate cause of the sudden change of position of the axis on Aug. 26 or 27. About that time an attempt was made to ascertain the source of the unsteadiness, but as it was supposed to be without result, no particular record was made of it. The change of meridian error was so great, that a consideration of the clock errors sufficed to shew that it must have occurred between the observations of Aug. 26 and Aug. 27. From that period to the reversion of Dec. 21 there was no unusual unsteadiness. The screws for the horizontal adjustment of the axis were not moved in 1840.

The *second column* of the right-hand pages contains the seconds, corrected for errors of collimation and level, of all the transits used in determining meridian error.

The meridian error in seconds of space is placed in the *third column*, with bars across to indicate the limits within which each value is used. The methods by which the values are severally obtained, are stated at the bottom of the page.

The correction in seconds of time applied to each transit is

$$\frac{1}{15} \times \text{meridian error} \times \sin \text{Zen. Dist.} \times \text{cosec } N.P.D.,$$

the zenith distance being negative when north of the zenith, and the north polar distance negative when north of the pole.

The seconds of each transit, corrected for the three errors of collimation, level, and azimuth, are arranged in the *fourth column*. The numbers for the Sun, Jupiter, and Saturn, when both limbs have been observed, apply to their centres, the mean of the uncorrected transits of the two limbs having been corrected in the same manner as other transits.



*Clock Error.*—The *fifth column* contains the seconds of the assumed apparent right ascensions of the stars used for determining clock error. Among these Polaris and  $\delta$  Ursæ Minoris are always included, not as being used for clock error, but because their apparent right ascensions are sometimes employed for finding the meridian error, and may in any case give the means of judging of the position of the instrument. The Assumed Mean Right Ascensions, Jan. 1, 1840, of the fundamental stars and of the two just mentioned, are as follows:

Star's Name.	Assumed Mean R.A. Jan. 1, 1840.	Excess over Naut. Alm. 1840.	Star's Name.	Assumed Mean R.A. Jan. 1, 1840.	Excess over Naut. Alm. 1840.
	<i>h. m. s.</i>	<i>s.</i>		<i>h. m. s.</i>	<i>s.</i>
$\alpha$ Andromedæ...	0. 0. 7,79	+ 0,07	$\epsilon$ Bootis.....	14. 37. 59,99	- 0,01
Polaris.....	1. 2. 9,89	- 0,79	$\alpha^1$ Libræ.....	14. 42. 2,32	+ 0,02
$\alpha$ Arietis.....	1. 58. 10,07	+ 0,13	$\alpha$ Coronæ Bor...	15. 27. 54,93	+ 0,06
$\alpha$ Ceti.....	2. 53. 55,43	+ 0,08	$\alpha$ Serpentis.....	15. 36. 23,53	+ 0,10
Aldebaran.....	4. 26. 44,83	+ 0,06	$\delta$ Ophiuchi.....	16. 5. 58,12	+ 0,09
Rigel.....	5. 6. 51,14	+ 0,05	Antares.....	16. 19. 36,54	+ 0,05
$\beta$ Tauri.....	5. 16. 10,93	- 0,03	$\alpha$ Herculis.....	17. 7. 21,24	- 0,06
$\alpha$ Orionis.....	5. 46. 30,70	- 0,01	$\alpha$ Ophiuchi.....	17. 27. 30,58	+ 0,02
Castor.....	7. 24. 22,90	- 0,09	$\delta$ Ursæ Minoris..	18. 23. 55,34	- 1,11
Procyon.....	7. 30. 55,35	+ 0,00	$\alpha$ Aquilæ.....	19. 42. 58,63	+ 0,07
Pollux.....	7. 35. 30,97	- 0,10	$\beta$ Aquilæ.....	19. 47. 27,27	+ 0,05
$\alpha$ Hydræ.....	9. 19. 43,56	- 0,01	$\alpha^1$ Capricorni....	20. 9. 10,41	+ 0,11
Regulus.....	9. 59. 50,70	- 0,10	$\beta$ Aquarii.....	21. 23. 7,98	+ 0,06
$\beta$ Leonis.....	11. 40. 53,69	- 0,01	$\alpha$ Aquarii.....	21. 57. 33,96	+ 0,10
Spica.....	13. 16. 46,44	+ 0,08	$\alpha$ Pegasi.....	22. 56. 47,76	+ 0,01
Arcturus.....	14. 8. 21,98	+ 0,01			

The Assumed Mean Right Ascensions were obtained by adding the annual variations to the Mean Right Ascensions Jan. 1, 1839 concluded from the Cambridge Observations of 1839, and given in pages 96 and 97 of the Volume for that year; with the exception of those of  $\alpha$  Ceti,  $\epsilon$  Bootis,  $\alpha$  Coronæ Borealis, and  $\alpha$  Serpentis, which were derived from the observations of 1838 and 1839, by giving to the results of the two years weights proportional to the respective number of observations. The mean excess of the assumed R.A. (excluding those of Polaris and  $\delta$  Ursæ Minoris) above the R.A. of the same stars in the Nautical Almanac is, + 0',028. If the corrections in p. x of the Preface to the Nautical Almanac of 1840 had not been applied, the mean excess would have been + 0',001, which is very nearly the same as that for the assumed R.A. of 1838.

To form the numbers of the fifth column, the excesses over the Nautical Almanac 1840 in the above table, are added to the seconds of the apparent R.A. given in that work. It will be seen that the corrections which are thus adopted for aberration, precession, and nutation, are the same as those of the Nautical Almanac, where, in accordance with what is said in the Preface to the Astronomical Society's Catalogue, (pp. x, xiii. and xiv.) the constant of aberration = 20",36, and that of lunar nutation = 9",25. For Polaris and  $\delta$  Ursæ Minoris the additional corrections are applied, depending on the Moon's longitude, which are given in pages 478 and 479 of the Nautical Almanac for 1840.

The clock errors of the *sixth column* are the excesses of the tabular apparent right ascensions (altered as just stated) above the corrected times of transit.

The correction applied to each transit for clock error consists of two parts, the error at the preceding 0<sup>h</sup> of the clock, and the increase of error by the clock's rate in the interval between 0<sup>h</sup> and the time of transit. These are calculated in the following manner. The observations are divided into groups, severally containing stars proper for giving clock errors. The groups are separated by intervals during which no observations have been taken, and which, as often as possible, belong to consecutive nights. The mean of the

clock errors in each group is considered to apply to the mean of the times of transit of the stars which furnish them. The comparison of this mean error with errors similarly derived from the next preceding and following groups, gives a preceding and a following rate; whence a rate is inferred which is assumed to hold uniformly throughout the middle group. No definite rule can be given for inferring the adopted rate: attention is paid to the probable degree of accuracy with which the rates it depends on are determined, and also to the proportion of the intervals separating the preceding and following mean clock errors from the intermediate one. In determining the rates for the observations of Sept. 2—5, regard was also paid to the difference of personal equation of B and G. By observations in 1841 it was found that G's observations were *later* than B's by 0<sup>s</sup>.28.

The adopted rate, which is put in the *seventh column*, is employed, first, in deducing from the mean clock error of the group to which it applies, the clock errors at all the times the clock shewed 0<sup>h</sup> in the interval between the limits of the group, which errors are arranged in the *eighth column*; and then in finding the additional correction for the interval between each transit and the next preceding 0<sup>h</sup>. Bars are placed across the seventh and eighth columns to indicate the limits of the groups to which the successive determinations of clock rate are applied.

The apparent right ascensions of the *ninth column* are formed by adding the two parts of the correction for clock error to the corrected times of transit contained in the fourth column. It should be observed, that the apparent right ascensions of Polaris and  $\delta$  Ursæ Minoris cannot be considered as entirely independent determinations, excepting where the meridian error is known by consecutive transits of one of these stars: nor can those of the fundamental stars be considered in any degree as such, unless three at least are contained in the same group.

The *tenth column* contains the corrections for aberration, precession and nutation, by applying which the mean Right Ascensions Jan. 1, 1840, are deduced from the apparent Right Ascensions. These corrections are calculated as follows.

For Stars whose apparent right ascensions are calculated in the Nautical Almanac, the requisite corrections are found by subtracting the apparent from the mean right ascensions of that work, the former in the instances of Polaris and  $\delta$  Ursæ Minoris being affected with the corrections depending on the Moon's longitude. For a star in the Royal Astronomical Society's Catalogue, and not included in the list of the Nautical Almanac, the correction is calculated by the formula  $Aa + Bb + Cc + Dd$ ;  $\log A$ ,  $\log B$ ,  $\log C$ , and  $\log D$  being taken from the Nautical Almanac without alteration, and  $\log a$ ,  $\log b$ ,  $\log c$ ,  $\log d$  from the Astronomical Society's Catalogue. The sign of the result is then changed. For a star not included in that Catalogue, the correction is calculated by the following formula, depending on the expressions for  $a$ ,  $b$ ,  $c$ ,  $d$ , given in p. xvii of the Preface to the Catalogue, and the sign of the result is changed.

$$\begin{aligned} \text{Correction} = & \frac{A}{15} \cos R. \operatorname{cosec} N.P.D. + \frac{B}{15} \sin R. \operatorname{cosec} N.P.D. + C \times (n^{\circ} \log = 0.4869) \\ & + \frac{C}{15} \times (n^{\circ} \log = 1.3020) \times \sin R. \cotan N.P.D. + \frac{D}{15} \cos R. \cotan N.P.D. \end{aligned}$$

The *Apparent Right Ascensions of Polaris and  $\delta$  Ursæ Minoris*, (pages 80 and 81) are merely extracted from the columns of Calculated Apparent Right Ascensions: and the *Mean Right Ascensions, Jan. 1, 1840, of these Stars* (in the same pages) are formed by adding algebraically the corrections in the tenth column to the apparent Right Ascensions. The *Mean Right Ascensions, Jan. 1, 1840, of Stars observed in the year 1840*, (pages 82—90) are formed in the same manner. The observations of Polaris and  $\delta$  Ursæ Minoris being in almost every instance independent, and those observations of clock-stars which were

not independent, being employed in the reduction of observations of the Sun, Moon, and Planets, it was not thought worth while to exclude any from the lists of Mean Right Ascensions.

The *Catalogue* in pages 91 and 92 contains the mean R.A. of each star concluded from all the preceding values of its mean R.A. The *Annual Variations* are either adopted from the Nautical Almanac, or are computed by the formula used in that work. Proper motions are not taken into account unless they are included in the Annual Variations adopted from the Nautical Almanac. For greater ease in identifying the stars, columns of approximate N.P.D. are added, and of those that are anonymous the magnitudes are also mentioned.

## II. *Observations with the Mural Circle and Calculation of Geocentric North Polar Distances.*

The particulars of observations with the Mural Circle, and the Calculations of Geocentric North Polar Distances, are recorded in pages 94—173. The left-hand pages contain the pointer and microscope readings, with those corrections only that are required for finding the concluded circle readings: the right-hand pages exhibit, first, the apparent Zenith Distances, as deduced from the concluded circle readings, and then the Geocentric North Polar Distances of the fixed stars and centres of the moving bodies, together with the elements of the Calculations by which the latter are derived from the Apparent Zenith Distances. The following is the explanation of the contents of the separate columns.

The *first column* has the day of observation, commencing always with the Sun's passage.

The *second column* contains the name of the object observed, with letters indicating the method of observation. *R* denotes that it is observed by reflexion: *M* that it is observed with the micrometer wire. When the limb of a planet is mentioned, it is that observed with the fixed wire. The Stars are named according to the rule adopted with respect to the Transit observations. Anonymous stars are designated by their approximate right ascensions, which may be inaccurate 2 or 3 seconds.

For understanding the explanations that follow it must be observed that the order of the six microscopes, beginning with *A*, which is at the northern extremity of the horizontal diameter of the circle, and proceeding over the highest part of the limb, is *ACEBDF*, so that *A* and *B*, *C* and *D*, *E* and *F*, are severally at the ends of a diameter. Also, that all micrometer readings increase as the micrometer wires move *towards* the graduated micrometer-heads. The microscopes have their micrometer-heads all directed the same way relatively to the graduation of the circle: that of *A* is *downwards*. When the Telescope is horizontal and its object glass looks southward, the micrometer-head of the eye-piece micrometer is also downwards.

The *third column* gives the indication of the pointer. The divisions of the circle are 5' apart, and the pointer is placed *below* microscope *A* at an interval of 10°. 45' nearly from the zero of its reading. The graduation proceeds in the direction from the microscope to the pointer, and the pointer reading in column 3 is the degrees and minutes of that division which, in the order of graduation, comes next *before* the position of the pointer. This, as first set down, is sometimes erroneous by some multiple of 5'; but as the error is readily detected in the computations, no notice is taken of it in the notes.

The *six succeeding columns* contain the readings of the six microscopes. The minutes which are set down in the first of these columns, are indicated by the number of indents of the comb of the microscope in the interval between the division bisected by the micrometer wire and the hole of the comb; and the seconds and fraction of a second are taken from the micrometer-head. The bisected division is that next to the hole, on the side,

as seen in the microscope, of the micrometer-head, (excepting in some instances mentioned hereafter), and as the direction of the micrometer-head from the hole of the comb is that in which the graduation proceeds, the microscope reading of *A* is equal to the arc between the division which gives the pointer reading of column 3, and a certain fixed point distant exactly  $10^{\circ}.45'$  from the zero of the microscope reading. Consequently the microscope reading *added* to the pointer reading is an arc of the circle, commencing with the zero of its graduation and terminating at this point. If the circle were perfectly graduated, and always retained the same circular form, and if the bisections of the divisions were accurately performed, arcs for different positions of the circle, referred in this way to the same point, would be comparable with each other, though determined by only one microscope, provided also the zero of the microscope reading retained a fixed position relatively to the axis of the circle. Errors from imperfect graduation, inaccurate bisections, and deviations from the circular form, may be presumed to be corrected in a great measure by the use of six microscopes, disposed at the opposite ends of diameters, and at equal distances round the circle. It appears, however, that a residual inequality remains, of which more will be said hereafter.

The *tenth column* contains the readings of the micrometer for the objects in the second column to which the letter *M* is attached.

The amount of correction for reducing an observation with the micrometer wire to the fixed wire, is placed in the *eleventh column*. This correction is the difference between the micrometer reading and the reading at coincidence of the micrometer wire with the fixed wire, converted into arc by multiplying by  $20''.868$ , which is the arc corresponding to one revolution of the micrometer-head. The micrometer readings increase as the micrometer-wire moves in the direction from the fixed wire to the micrometer head, which is also the direction in which the graduation of the circle proceeds. Hence the correction is positive or negative, according as the micrometer reading is less or greater than the reading at coincidence.

As the micrometer wire is not exactly parallel to the fixed wire, the coincidence readings at all the wires are observed from time to time, as well as more frequently the coincidence at the middle wire, and different values are used according to the position of the object in the field at the time of its bisection by the micrometer wire. The times of observing the coincidences are stated in the left-hand pages, and the new values with the dates from which they are used, are given in the right-hand pages, in the spaces below the columns.

It being found that the *differences* of the coincidences at the five wires were very nearly constant, after Aug. 5 the coincidence at the middle wire only was observed, and the coincidences at the first, second, fourth, and fifth were inferred from that at the middle wire by applying the corrections  $-0''.010$ ,  $-0''.003$ ,  $+0''.004$ ,  $+0''.010$  respectively. These corrections are mean results from twelve observations of coincidences at the five wires taken from Jan. 1. to Aug. 5. The adopted coincidences of July 6, 13, and 24, and all after those of Aug. 1. to the end of the year are obtained by this rule.

When an observation is taken between two wires, the adopted coincidence is interpolated; when taken beyond the wires, an allowance for difference of coincidence is calculated at the rate of  $0''.004$  for an interval equal to that between consecutive wires, and is applied with its proper sign to the coincidence at the wire nearest the place of observation.

June 29,  $6\frac{1}{2}^h$ . I made the following observations for determining the value of one revolution of the eye-piece micrometer. The micrometer-wire was set alternately  $15'$  above and  $15'$  below the fixed wire, and the observations were made by bisecting a small rectangular aperture at the top of Grantchester tower. This was thought preferable to bringing the wire into contact with a *dark* object.

Micro- meter reading.	Pointer reading.	Microscope A	B	C	D	E	F	Correction for Runs.	Concluded Circle reading.	Difference.	Mean of consecutive differences.
- 15	202. 35	0. 58,3	57,8	58,3	59,0	58,5	58,2	- 0,7	202. 35. 58,23	" "	" "
+ 15	202. 45	1. 26,3	24,6	24,6	25,5	24,2	25,4	- 1,1	202. 46. 24,92	10. 26,69	10. 27,01
- 15	202. 35	0. 58,2	57,9	57,5	58,9	56,4	57,3	- 0,7	202. 35. 57,58	10. 27,34	10. 25,46
+ 15	202. 45	1. 23,0	20,2	21,0	21,5	20,3	22,0	- 1,1	202. 46. 21,15	10. 23,57	10. 25,47
- 15	202. 35	0. 54,1	53,9	53,5	54,1	54,2	53,6	- 0,7	202. 35. 53,78	10. 27,37	10. 26,03
+ 15	202. 45	1. 19,5	18,6	18,3	18,8	17,3	19,3	- 1,0	202. 46. 18,47	10. 24,69	10. 26,14
- 15	202. 35	0. 51,4	51,5	50,7	51,5	50,4	50,5	- 0,7	202. 35. 50,88	10. 27,59	10. 26,20
+ 15	202. 45	1. 16,6	15,8	16,0	16,5	14,3	15,9	- 1,0	202. 46. 15,68	10. 24,80	

The temperature was at 66°.1. The mark was seen very distinctly, but there was considerable vertical vibration, and it is evident from the gradual diminution of the circle readings, that the apparent altitude of the tower was increasing by a change of refraction during the observations. By taking the means of consecutive differences this source of error must be very nearly eliminated. The corrections for runs, the amount of which was found immediately after the above observations to be +3",9 for 5', are applied on a principle which will be shortly explained. The mean of the six determinations is 10'.26",05, and the value of one revolution is therefore 20",868.

When the observation is not made at or very near the middle wire, the distance of the place of bisection from the middle wire is expressed in the *twelfth column* in whole intervals and parts of an interval between consecutive wires, the negative or positive sign being affixed according as the bisection was made *before* or *after* passing the middle wire. The times by Molyneux of the bisection of Polaris and  $\delta$  Ursæ Minoris, whenever these stars are not observed very near the true meridian, are stated in the notes at the bottom of the page.

The corrections in the *thirteenth column* serve to reduce the observation to what it would have been if taken at the middle wire, and depend, for the fixed stars, only on the curvature of their diurnal paths, but for the moving bodies both on curvature of path and on change of N.P.D. In the latter case the sum of the corrections is put in column 13, and the amount for change of N.P.D. is stated in the notes. These corrections are calculated as follows.

The correction for curvature of path is obtained for Polaris and  $\delta$  Ursæ Minoris by converting the time by Molyneux into time by Hardy, by means of comparisons given below the columns of the left-hand pages, and thence inferring the true sidereal time from the error of Hardy given by the transit observations. The correction is then immediately deduced from the difference of this time and the time of meridian passage given in the Nautical Almanac, by means of tables especially calculated for these two stars. For other stars, the calculation is performed by a known formula, according to which, the correction for a given distance from the middle wire varies as the tangent of declination, and for a given declination varies as the square of the distance. When the declination is 45°, the correction for one interval from the middle wire, which is traversed by an equatorial star in 16'.6, is 0".1503. With respect to the sign of the correction it is to be observed, that in looking directly at an object between the pole and the equator, the Telescope is turned by reason of the curvature of path too far in the direction in which the graduation proceeds. The circle reading is consequently too small, and the correction is positive. The contrary is the case below the equator and below the pole. In reflexion observations, the error of position of the Telescope is in the opposite direction, and the sign of the correction is always contrary to what it is in observing directly the same objects.



The correction for change of N.P.D. is calculated in the case of the Sun and Planets, by inferring the change in the time between the instant of observation and the passage across the middle wire, from the horary variation given in the Nautical Almanac. This time is estimated by intervals and parts of an interval between the wires, taking each interval equal to  $16^s.6 \times \text{sec. of declination}$ . In observations of the Moon, an exact value of the time of passing from one wire to the next is requisite, on account of the rapid change of her N.P.D. The value employed is  $16^s.6$ , multiplied by the factor used for correcting to the mean of all the wires in imperfect transit observations of the Moon, the expression for which is given p. ii. The required correction is then inferred from the variation of the Moon's N.P.D. in  $10^m$ , given in the Nautical Almanac. The sign of the correction for change of N.P.D. is determined by considering that when the N.P.D. of the moving body is increasing, before it passes the middle wire the Telescope is advanced too far in the direction of the circle's graduation, and after passing, too far in the contrary direction. The circle reading requires a *plus* correction in the first case, and a *minus* correction in the other. If the N.P.D. is decreasing, the signs of the corrections are the contrary.

The microscope readings obtained in the manner stated p. xi, are affected with an error of *Runs*, unless the micrometer wire is carried by five turns of the micrometer exactly from the image of one division to that of the next, which can very rarely happen. The corrections applied on this account are obtained in the following manner. The circle is clamped in such a position, that a division is near the zero of the microscope on the *negative* side, or that removed from the micrometer head; and this division with the adjacent one on the *positive* side of zero, is bisected. The excess of the micrometer reading for the latter above the micrometer reading for the other, with sign changed, is the quantity to be added to a micrometer reading of  $5'$ , to correct for the inequality in question. For a less reading the correction is proportionally less. Instead of correcting for each microscope reading separately, it is sufficiently accurate and more expeditious, to add the excesses of the six microscopes together, to take a part of the sum with sign changed, bearing the same ratio to the whole as the approximate mean microscope reading to  $5'$ , and then adding up this part with the six microscope readings, to divide the sum by 6 to obtain the corrected mean reading. The sum of the excesses with sign changed, is the "Correction for Runs" at the bottom of the right-hand pages, where also the times of commencing a new value are stated. The dates of the observations for runs are given on the opposite pages.

It sometimes happens in an observation, that a division falls so near the zero of the microscope that it is uncertain whether it be on the negative or positive side. In such a case it is always bisected, and should it afterwards be found to be on the negative side, the pointer reading and minutes of the microscope readings are put down for the sake of uniformity as if the division on the positive side had been bisected, but no correction, or a small negative one, is applied for runs. When this circumstance occurs it is mentioned in the notes.

The following Table exhibits the results of the observations made in 1840 for the error of Runs of the six microscopes. The Temperature in degrees of Fahrenheit is added, as the variations of the Runs appear to depend in great measure on changes of Temperature.

Day of Observation 1840.	Excess of micrometer-reading for positive division above micrometer-reading for negative division, for each microscope.						Sum of Ex- cesses.	Temperature.		Day of Observation 1840.	Excess of micrometer-reading for positive division above micrometer-reading for negative division, for each microscope.						Sum of Ex- cesses.	Temperature.
	A	B	C	D	E	F					A	B	C	D	E	F		
Jan. 1	+2,5	+2,7	+0,5	-0,3	+1,1	+1,0	+7,5	50		July 20	+0,8	+0,1	+1,4	-1,5	+3,6	+1,7	+6,1	65
13	+0,3	-7,4	+0,7	-1,5	+0,6	+1,2	-6,1	38		27	+1,0	+0,1	+1,6	0,0	+3,0	+0,8	+6,5	64
26	-0,1	-7,3	+0,8	-0,6	+0,4	+0,4	-6,4	38										
Feb. 7	0,0	-7,6	+0,4	-1,5	+1,2	+1,0	-6,3	43		Aug. 3	+0,5	+0,8	+1,3	-0,9	+3,2	+1,5	+6,4	74
18	-0,3	-6,7	+1,6	-0,5	+0,8	+1,3	-3,8	41		12	+0,4	+1,2	+2,0	-0,3	+2,5	+2,1	+7,9	64
23	-0,5	-7,2	+1,7	-0,6	+0,8	+0,1	-5,7	35		...	+0,8	+1,3	+1,2	-0,6	+2,9	+1,6	+7,2	60
										17	+0,5	+0,1	+1,2	-0,7	+2,5	+1,4	+5,0	66
Mar. 5	0,0	-7,4	-0,2	-1,1	+0,5	+1,1	-7,1	40		23	+1,2	+0,5	+1,3	+0,8	+3,0	+1,5	+8,3	66
19	-0,2	-7,1	+1,4	-0,6	+0,9	+1,7	-3,9	45		...	+1,4	+0,9	+0,7	-0,6	+2,3	+1,9	+6,5	66
Apr. 3	-0,4	-6,8	+0,2	-1,0	+1,1	+1,0	-3,9	47		Sept. 1	+1,0	0,0	+2,2	-0,2	+3,1	+1,3	+7,4	73
13	+0,3	-7,2	+0,6	-0,2	+1,1	+1,5	-3,4	54		7	+0,9	+0,4	+1,2	-0,6	+1,9	+1,2	+5,0	64
27	+0,8	-6,5	+1,1	-0,1	+2,0	+1,2	-1,5	66		23	+1,3	+0,7	0,0	-0,5	+1,7	+1,0	+4,2	51
May 4	+1,1	-6,3	+2,1	-0,8	+1,0	+1,1	-1,8	62		Oct. 6	+0,8	+0,2	+1,6	-0,9	+0,8	+0,9	+3,4	52
25	+0,5	-6,0	+0,9	-0,3	+1,1	+1,7	-2,1	57		12	+0,5	-1,5	+0,9	-0,6	+1,1	+1,2	+1,6	52
28	+1,1	-6,6	+0,9	-0,7	+1,9	+1,9	-1,5	66		30	+1,1	-0,8	+1,0	-2,0	+0,9	+2,0	+2,2	50
June 8	+0,8	-6,7	+1,9	-1,1	+1,1	+0,6	-3,4	67		Nov. 9	+0,7	0,0	+0,8	-1,1	+0,6	+0,9	+1,9	51
26	+1,2	-5,8	+1,0	-0,9	+1,4	+1,2	-1,9	61		20	+0,1	-0,2	+0,9	-1,0	+0,4	+1,5	+1,7	44
29	+0,9	+1,1	+1,2	-0,7	+0,9	+0,5	+3,9	66		Dec. 2	+0,4	-1,0	+1,0	-1,2	+1,6	+0,7	+1,5	45
July 11	+0,5	+1,2	+1,7	-0,3	+1,0	+0,7	+4,8	59		9	+0,8	-1,0	+0,6	-0,6	+2,0	+0,7	+2,5	43
										16	-0,2	+0,3	+0,4	-1,0	+1,7	+0,7	+1,9	33

The Run of microscope B was altered before Jan. 13, and again after June 26, by adjusting its object-glass.  
On Aug. 12 and Aug. 23 the Runs were taken in two different positions of the circle.

The concluded circle reading in the *fourteenth column* is the mean of the microscope readings with all the above corrections applied. It is, therefore, the reading of the circle, supposing the microscopes to be in accurate adjustment for runs, and the object to have been observed with the fixed wire as it passed the middle vertical wire. For Polaris and  $\delta$  Ursæ Minoris the concluded reading applies to the time of meridian passage.

The *fifteenth column* contains the initial of the observer's name. The observations marked C are by myself, and those marked G by Mr. Glaisher.

The mean between the two concluded readings of the reflexion and direct observations of the same star, is the reading corresponding to one or the other horizontal position of the Telescope, and, increased or diminished, as the position may require, by 90°, gives the reading when the Telescope is vertical and object-glass upwards. The readings thus determined, which for shortness are called "zenith points," are placed in the *first column* of the *right-hand page*. As the zenith points are found to be discordant with each other, a mean zenith point is adopted for forming the zenith distances of all observations included within certain limits, and is placed, with the date of its commencement, at the bottom of the page. The adopted zenith point has been deduced from the several zenith points of the series to which it applies, by the following rule. The stars observed by reflexion and directly are divided into three groups, one comprehending stars near the zenith, and the other comprehending stars distant from the zenith, north and south respectively, the groups containing, as far as is practicable, each the same number of zenith

points. The mean of the zenith points given by each group is considered to apply to the mean of the corresponding zenith distances, and from the three results the zenith point corresponding to a zenith distance of  $0^\circ$  is calculated by interpolation. This is the adopted zenith point. It differs in general very little from the mean of the zenith points of the middle group. If there were no cause of discordance the zenith points determined by observations at different zenith distances would all be the same; and consequently the differences between the adopted zenith point and the other zenith points, are measures of the discordance at different zenith distances from whatever cause it may arise, and furnish the means of correcting for it, as will be shewn further on.

The limits between which the same adopted zenith point is used, include all observations in the course of which no considerable variation of the separate zenith points, distinct from the discordance above mentioned, can be recognised. Usually they are determined by changes arising from instrumental adjustments: but it also happens that gradual changes from unknown causes make the adoption of a new zenith point necessary. Every known cause of a change is mentioned where it occurs.

The *second column* contains the apparent zenith distance. This, or its supplement, according as the observation is direct or by reflexion, is obtained by subtracting algebraically the adopted zenith point from the circle reading of column 14, left-hand page, and, if the remainder, be greater than  $180^\circ$ , adding to it when negative and subtracting from it when positive,  $360^\circ$ . The object is south or north of the zenith according as the result is in either case positive or negative.

The four next columns contain the materials for the calculation of *refraction*. The *third column* has the height of the barometer, as shewn by a cistern-barometer constructed by Dollond, and attached to the circle pier. The lower surface of the mercury is raised by a screw pressing the bag till the light seen below a brass edge is excluded; and a brass slider is brought to the upper surface to shut out the light in the same way. The *fourth column* has the reading of the thermometer whose bulb is plunged in the cistern of the barometer.

As it appeared by a comparison of this with six other barometers, (the particulars of which are given in the Volume for 1835, p. xxxi) that its readings were too small by 0.1 inch nearly, the height immediately read from the barometer, which is that recorded in column 3, has always been increased by that quantity in calculating the refraction.

The *fifth column* has the mean of the readings of the two free thermometers. These thermometers are carried by jointed arms attached to the top of the pier, one at the North the other at the South end, and are nearly on a level with the upper limb of the circle. Precautions have been taken to ensure the free passage of air by the thermometer bulbs, and to protect them from radiation. When the Sun is near the meridian, the thermometers are turned from its rays by means of the jointed arms. All but the lowest shutters of the circle-room are kept open before and during observations, except when it is occasionally necessary for obtaining reflexion observations to close them partially a few minutes, on account of the disturbance of the mercury by the wind. Thus there is generally a strong current of air past the thermometers; and as the observing lamps are removed from the room when not in use, it may be presumed that the interior temperature is very little different from the exterior\*.

The refraction in the *sixth column* is calculated by Bessel's tables, (*Tabulæ Regiomontanæ*, p. 538, &c.) by making use of the Appendix to the *Greenwich Observations* of 1836. In this mode of calculation the reading of the attached is supposed to be the same as that of the free thermometer. The former reading, though not made use of, is inserted

\* See Introduction to Volume for 1835, p. xxxiii.



in the printed columns, to furnish the means of correcting, if required, for the error of this supposition.

The *seventh column* contains the parallax. If  $r$  and  $D$  be respectively the lines from the centre of the Earth to the place of observation and object observed,  $z$  the angle they make with each other,  $r'$  the Earth's equatoreal radius,  $D'$  the mean distance of the Sun from the Earth, and  $p$  the parallax, then the formula used for the Sun's limbs and for the planets is,

$$p = \frac{r}{r'} \times \frac{r'}{D'} \times \frac{D'}{D} \times \sin z.$$

$\text{Log } \frac{r}{r'}$  is taken = 9,9990916, which supposes the ratio of the Earth's axes to be that of 297 to 298;  $\log \frac{r'}{D'} = 0,9333607$ , the assumed value of the Sun's equatoreal horizontal parallax at the mean distance being 8",5776;  $\log \frac{D'}{D}$  is the arithmetical complement of the log of distance given in the Nautical Almanac; and  $z$  is found by subtracting 11'.12", the angle of the vertical given by the above ratio of the axes, from the observed zenith distance.

The formula used for computing the parallax of the Moon's limbs is

$$\sin p = \frac{r}{r'} \sin (P + a) \sin z,$$

where  $P$  is the equatoreal horizontal parallax, which is interpolated with second differences from the Nautical Almanac, and  $a$  is a small correction introduced by finding exactly the parallax of the limb, that is, the angle made by a tangent to the highest or lowest point of the Moon's surface, as seen from the place of observation, with a tangent to the highest or lowest point, as seen from the Earth's centre. In using the above formula, the sine is not considered equal to the arc. The other elements of the calculation are the same as for the planets.

For the calculation of  $a$ , which is dependent on the zenith distance, I must refer to the *Cambridge Observations*, Vol. iv., for 1831, p. 147. The following is a table of its values, for the North and South Limbs, and for different zenith distances.

Zenith Distance.	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°
Corr. for N.L.	- 0,03	- 0,04	- 0,05	- 0,06	- 0,06	- 0,07	- 0,08	- 0,08	- 0,09	- 0,09	- 0,09
Corr. for S.L.	+ 0,10	+ 0,11	+ 0,12	+ 0,12	+ 0,13	+ 0,14	+ 0,15	+ 0,15	+ 0,16	+ 0,16	+ 0,16

The *eighth column* contains the micrometer reading, when one limb of a planet is observed with the micrometer wire, and the other on the fixed wire.

The *ninth column* contains the semidiameters of the Sun and Moon, and those of the planets whenever they are not observed by bisecting their centres. The Sun's semidiameter is taken from pages II of the Nautical Almanac; the Moon's is interpolated with second differences from the Nautical Almanac. The apparent diameters of Jupiter and Saturn in the vertical direction, are given by the micrometer readings of column 8, treated in the same manner as those on the left-hand page, and the semidiameters of column 9 are found by merely halving the results.

For Venus the micrometer reading of column 8 gives the difference of N.P.D. of the N. or S. limb and the extreme illumined point of the opposite limb, whence the semi-

diameter is deduced in the manner following. From the spherical triangle which has its angles at *P* the pole of the equator, *V* the geocentric place of Venus, and *S* the geocentric place of the Sun, at the time of observation, the angle ( $\theta$ ) made by the line joining the extreme illumined points of the planet's periphery with the circle of declination through her centre is first derived, this angle being equal to the difference of  $\angle PVS$  and  $90^\circ$ . Then, Venus having been gibbous throughout 1840, the semidiameter is calculated by the following formulæ:

$$\sin \theta' = \frac{R}{r} \sin SV \sin \theta, \quad \text{semidiameter} = \frac{\Delta}{2} \sec^2 \frac{\theta'}{2};$$

$\Delta$  being the above-mentioned difference of N.P.D. converted into arc, and the logarithms of *R* and *r*, which are respectively the distances of the Earth and Venus from the Sun, being taken from the Nautical Almanac. The calculated semidiameter is set down in column 9. When it happened that the deficient limb was observed on the fixed wire, which was generally the case between Sept. 8 and Nov. 6, the value employed for deducing the N.P.D. of the centre, is this semidiameter diminished by the excess of the calculated above the measured diameter.

The geocentric N.P.D. of the centre in the *tenth column* is deduced from each observation by applying to the apparent zenith distance of column 2 the corrections for refraction, parallax, and semidiameter, and adding  $37^\circ.47'.8''.28$ , the assumed colatitude of the Observatory\*. The result is, therefore, the N.P.D. of the centre of the object as viewed from the Earth's centre, at the time of passing the middle wire, affected by uncorrected instrumental errors and errors of observation, as also by any errors in the assumed values of the constants employed in the calculations. The negative sign denotes that the object was observed below the pole.

The *eleventh column* contains the corrections to be applied to the apparent N.P.D. of stars to obtain their mean N.P.D. at the beginning of the year. These corrections with their proper signs are obtained as follows.

For stars included in the list of the Nautical Almanac, the corrections are obtained by subtracting the mean from the apparent declinations of that work, the latter being found for the days of observation by interpolation. For Stars not in the Nautical Almanac, but included in the Catalogue of the Royal Astronomical Society, the corrections are calculated by the formula,  $Aa' + Bb' + Cc' + Dd'$ ,  $\log A$ ,  $\log B$ ,  $\log C$ ,  $\log D$ , being taken from the Nautical Almanac; and  $\log a'$ ,  $\log b'$ ,  $\log c'$ ,  $\log d'$ , from the Society's Catalogue. For stars not in that Catalogue, the corrections are calculated by the following formula, depending on the expressions for  $a'$ ,  $b'$ ,  $c'$ ,  $d'$ , given in p. xvii of the Preface:

$$\begin{aligned} \text{Correction} = & A \times (N^\circ. \log = 9,6375) \times \sin N.P.D. - A \cdot \sin R \cos N.P.D. \\ & + B \cos R \cos N.P.D. + C \times (N^\circ. \log = 1,3020) \cos R - D \sin R. \end{aligned}$$

The *Mean North Polar Distances*, Jan. 1, 1840, of the stars observed in 1840, as deduced from each day's observation, are arranged in pages 176—187. These are derived from the apparent N.P.D. by merely applying the corrections just spoken of. When the resulting mean N.P.D. is included in brackets, no use is made of it in deducing the concluded mean.

The results by the same star, when observed above and when below the pole, are arranged separately to serve for correcting the assumed colatitude. Also, the results by direct observations are separated from those by reflexion observations of the same star, for

\* In three instances small corrections have been applied to the Geocentric N.P.D. of the Moon for defect of illumination of the Limb; viz. on July 11, when the deficient Limb was taken alone, and on Sept. 11 and Oct. 10 when both limbs were observed. The amounts are stated in the notes. The corrections were calculated in the manner explained at p. xli of the Introduction of the Volume for 1838.

the purpose of exhibiting the effect of the discordance of zenith points before spoken of, and furnishing data for applying a correction.

A *Catalogue of the Concluded Mean North Polar Distances, Jan. 1, 1840*, with the *Annual Variations*, is given in pages 188—190. The concluded mean is the mean (corrected as stated below) of all the preceding mean N.P.D.; and the annual variations are either taken from the Nautical Almanac, or are computed by the formula used in that work. Proper motions are not taken into account unless they are included in the annual variations adopted from the Nautical Almanac. For greater ease in identifying the stars, columns of their approximate mean R.A. Jan. 1, 1840 are added, and of anonymous stars the approximate magnitudes are also mentioned.

The corrections applied to the mean of all the different determinations of mean N.P.D., to obtain the concluded mean, are for error of assumed colatitude and for discordance of zenith points. The former correction is derived from a new determination of the colatitude of the Observatory, calculated from all the observations of the same stars above and below pole which were made in the years 1836, 1837 and 1838. The calculation is given in pages liii—lviii of the Introduction to the Volume of 1838, and the result is, that the assumed colatitude  $37^{\circ}.47'.8''.28$  should be corrected by  $+0''.09$ . This quantity is accordingly added algebraically to the mean N.P.D., considering them negative when the observations are below the pole.

The correction for discordance of zenith points is applied on the following principle. The discordance is of such a nature, that the circle reading for zenith point is in general less by a star observed south of the zenith than by a star observed north of the zenith. Apparently when the object-glass is to the south of zenith, the Telescope, whether directed to the heavens or the trough of mercury, requires to be turned for bisecting an object a little farther in the direction of the graduation than if the cause of inequality did not exist; and when the object-glass is to the north of zenith, a little in the contrary direction. Whatever may be the cause of the discordance, the error it produces may be presumed to be corrected by reducing the different zenith points to the zenith point corresponding to a *given* zenith distance. Hence, if  $M$  be the zenith point adopted according to the rule explained in page xv, and  $Z$  the zenith point resulting from a particular double observation south of zenith,  $M - Z$  is the error of the circle reading in defect, both for the reflexion and the direct observation, supposing both to be equally affected by the inequality. By this quantity the N.P.D. is too small as determined by the direct observation, and too great as determined by the reflexion observation; so that the excess of the latter determination above the other is twice  $M - Z$ . These inferences apply to observations north of the zenith, by taking  $M - Z$  a negative quantity when  $Z$  is greater than  $M$ , and the N.P.D. negative when the star is observed below the pole. The following table exhibits for each star observed directly and by reflexion, the mean value of  $M - Z$ , derived from the lists in pages 176—187, by halving the algebraic excess of the mean of the N.P.D. by reflexion above the mean of the corresponding N.P.D. by direct vision.

*Mean excess for each star of the adopted Zenith Point above the Zenith Points given by Observation.*

Star's Name.	Zen. Dist.	No. of Obs.	Means of M-Z.	Star's Name.	Zen. Dist.	No. of Obs.	Means of M-Z.
$\delta$ Aurigæ SP.....	- 73 . 31	1	- 0,79	$\beta$ Bootis.....	+ 11 . 12	3	- 0,17
$\gamma$ Ursæ Majoris SP.	73 . 11	2	+ 0,71	$\beta$ Persei.....	11 . 52	5	- 0,03
$\xi$ Draconis SP.....	70 . 54	2	+ 0,36	$\gamma$ Cygni.....	12 . 28	1	+ 0,90
$m$ Ursæ Majoris SP.	69 . 53	2	+ 0,26	$\eta$ Herculis.....	12 . 59	3	+ 0,11
$\delta$ Ursæ Majoris SP.	69 . 51	1	- 0,10	$\eta$ Lyrae.....	13 . 20	4	+ 0,05
				$\alpha$ Lyrae.....	13 . 35	23	+ 0,19
31 Camelopardi SP.	67 . 56	1	- 0,67	$\beta$ Lyrae.....	19 . 2	12	+ 0,07
$\eta$ Cephei SP.....	66 . 34	2	+ 0,68	$\beta^2$ Lyrae.....	19 . 3	3	- 0,10
$\alpha$ Ursæ Majoris SP.	66 . 32	2	+ 0,44	Castor.....	19 . 59	3	+ 0,28
$\alpha$ Cephei SP.....	65 . 53	1	+ 0,18	$\tau$ Geminorum.....	21 . 43	2	+ 1,02
$\alpha$ Ursæ Majoris SP.	65 . 10	6	+ 0,20	$\beta$ Tauri.....	23 . 45	3	+ 0,58
$h$ Ursæ Majoris SP.	64 . 2	1	- 0,29	Pollux.....	23 . 48	7	+ 0,86
$\pi^2$ Ursæ Majoris SP.	62 . 54	2	- 0,92	$\alpha$ Andromedæ.....	24 . 1	1	+ 0,14
$\alpha$ Draconis SP.....	62 . 39	2	+ 0,29	$\epsilon$ Bootis.....	24 . 27	3	+ 0,43
A.S.C. 552 SP.....	61 . 44	1	- 0,64	$\alpha$ Coronæ Borealis.	24 . 57	4	+ 0,25
55 Camelopardi SP.	58 . 51	1	- 0,19	$\epsilon$ Geminorum.....	26 . 55	2	+ 0,43
$\lambda$ Draconis SP.....	57 . 35	2	0,00	$\alpha$ Arietis.....	29 . 31	8	+ 0,58
$\kappa$ Draconis SP.....	57 . 6	2	+ 0,24	$\delta$ Leonis.....	30 . 49	3	+ 0,86
$\beta$ Ursæ Minoris SP.	52 . 58	4	+ 0,16	Arcturus.....	32 . 11	17	+ 0,53
$\gamma$ Cephei SP.....	51 . 3	1	- 0,04	$\eta$ Bootis.....	33 . 0	3	+ 0,69
$\zeta$ Ursæ Minoris SP.	49 . 30	2	+ 0,20				
A.S.C. 87+ SP.....	45 . 5	4	+ 0,06	Aldebaran.....	36 . 2	6	+ 0,91
$\delta$ Ursæ Minoris SP.	41 . 12	2	- 0,19	$\beta$ Leonis.....	36 . 44	3	+ 0,94
Polaris SP.....	39 . 20	16	- 0,54	$\epsilon$ Aquilæ.....	37 . 21	3	+ 0,15
				$\alpha$ Herculis.....	37 . 37	3	+ 1,27
Polaris.....	36 . 14	19	- 0,82	$\alpha$ Pegasi.....	37 . 53	4	+ 0,89
$\delta$ Ursæ Minoris.....	34 . 23	6	- 0,65	Regulus.....	39 . 27	3	+ 1,18
$\epsilon$ Ursæ Minoris.....	30 . 5	3	- 0,08	$\alpha$ Ophiuchi.....	39 . 32	6	+ 0,38
				$\alpha^2$ Cancri.....	39 . 45	1	- 0,75
$\zeta$ Ursæ Minoris.....	26 . 4	2	+ 0,47	$\epsilon$ Virginis.....	40 . 24	1	+ 0,87
$\gamma$ Cephei.....	24 . 31	2	+ 0,38				
$\lambda$ Ursæ Minoris.....	24 . 11	3	- 0,75	$\gamma$ Aquilæ.....	41 . 59	4	- 0,05
$\beta$ Ursæ Minoris.....	22 . 36	14	- 0,79	$\beta$ Cancri.....	42 . 32	2	+ 0,77
				$\kappa$ Ophiuchi.....	42 . 35	2	+ 0,42
$\kappa$ Draconis.....	18 . 27	1	- 0,76	$\epsilon$ Canis Minoris.....	42 . 38	1	- 0,28
$\lambda$ Draconis.....	17 . 59	1	+ 0,21	$\epsilon$ Pegasi.....	43 . 4	4	+ 0,35
$\beta$ Cephei.....	17 . 38	8	- 0,53	$\alpha$ Aquilæ.....	43 . 46	5	+ 0,42
55 Camelopardi.....	16 . 43	2	- 0,31				
$\rho$ Draconis.....	15 . 12	3	- 0,35	$\alpha$ Serpentis.....	45 . 16	2	+ 0,36
				$\beta$ Aquilæ.....	46 . 12	6	+ 0,82
$\zeta$ Draconis.....	13 . 42	2	- 0,71	Procyon.....	46 . 35	6	+ 0,62
$\epsilon$ Cephei SP.....	13 . 9	2	- 0,64	$\alpha$ Equulei.....	47 . 37	3	+ 0,69
$\alpha$ Draconis.....	12 . 55	6	- 0,45	$\eta$ Hydræ.....	48 . 15	1	+ 0,15
$\pi^2$ Ursæ Majoris.....	12 . 40	3	- 0,42	$\alpha$ Ceti.....	48 . 46	2	+ 0,41
				$\tau$ Virginis.....	49 . 54	1	+ 0,07
$\epsilon$ Cassiopeiæ.....	10 . 40	1	- 0,03				
$\alpha$ Ursæ Majoris.....	10 . 25	16	- 0,53	$\alpha$ Aquarii.....	53 . 19	4	+ 0,87
$\alpha$ Cephei.....	9 . 41	15	- 0,41	$\eta$ Serpentis.....	55 . 9	3	+ 0,43
$\eta$ Draconis.....	9 . 40	3	- 0,62	$\beta$ Eridani.....	57 . 31	2	+ 0,99
$\alpha$ Ursæ Majoris.....	9 . 2	4	- 0,10	$\beta$ Aquarii.....	58 . 30	3	+ 0,68
$\eta$ Cephei.....	9 . 1	2	- 0,34				
$\delta$ Cassiopeiæ.....	7 . 11	2	+ 0,37	$\alpha$ Hydræ.....	60 . 11	1	+ 0,99
$m$ Ursæ Majoris.....	5 . 41	1	- 1,35	Rigel.....	60 . 36	2	+ 0,85
$\epsilon$ Ursæ Majoris.....	4 . 37	3	- 0,62	$\epsilon$ Eridani.....	62 . 13	1	+ 0,82
$\epsilon$ Cephei.....	4 . 2	2	- 0,30	Spica.....	62 . 32	4	+ 0,78
$\alpha$ Cassiopeiæ.....	3 . 26	4	- 0,19	$\xi^2$ Libræ.....	62 . 59	1	+ 0,39
$\gamma$ Ursæ Majoris.....	- 2 . 23	7	- 0,19				
				$\alpha^1$ Capricorni.....	65 . 13	2	+ 1,32
$\eta$ Ursæ Majoris.....	+ 2 . 5	5	+ 1,19	$\alpha^2$ Capricorni.....	65 . 15	2	+ 0,73
$\alpha$ Persei.....	2 . 56	9	+ 0,21	$\pi$ Ceti.....	66 . 45	1	+ 1,21
$\theta$ Persei.....	3 . 40	2	+ 0,23	$\nu$ Hydræ et Crat.....	67 . 35	1	+ 0,95
$\alpha$ Ursæ Majoris.....	4 . 26	2	0,00	$\eta$ Ophiuchi.....	67 . 44	2	+ 0,45
Capella.....	6 . 23	11	+ 0,50	$\gamma$ Corvi.....	68 . 52	1	+ 0,88
$\alpha$ Cygni.....	7 . 31	12	+ 0,55				
$\lambda$ Ursæ Majoris.....	8 . 30	2	+ 0,85	$\lambda$ Sagittarii.....	77 . 43	2	- 0,93
$\epsilon$ Aurigæ.....	8 . 38	2	+ 0,76	Antares.....	+ 78 . 17	2	+ 0,67

From the preceding table, the one subjoined of corrections to be applied, to N.P.D. observed directly, was deduced as follows. The above mean values of  $M-Z$  were divided into groups the limits of which, (indicated by the lines across,) were chosen so that the stars of each group do not greatly differ in zenith distance. Each mean value in a group was multiplied by the number of observations by which it was determined, and the corresponding zenith distance by the same number. The sum of each series of products being divided by the whole number of observations in the group, the resulting value of  $M-Z$  was considered to belong to the resulting zenith distance. A line of abscissæ was then drawn on which these zenith distances were set off, and the corresponding values of  $M-Z$  being taken for ordinates, a curve was traced by hand among the points thus determined, so as to approach nearer to any point, the greater the number of observations by which its position was assigned. Ordinates of this curve were then measured at intervals of 5°, and the measures with the corresponding N.P.D. tabulated as follows, to serve for correcting by interpolation at any proposed N.P.D. From what has been already said, the sign of the correction for a direct observation is the same as that of  $M-Z$ , or the ordinate of the curve.

*Corrections for Discordance of Zenith Points, to be added algebraically to N.P.D. by direct Observations, 1840.*

N.P.D.	Correction.	N.P.D.	Correction.	N.P.D.	Correction.
-40	+ 0,20	+ 15	- 0,59	+ 70	+ 0,55
35	+ 0,19	20	- 0,56	75	+ 0,53
30	+ 0,18	25	- 0,50	80	+ 0,46
25	+ 0,14	30	- 0,38	85	+ 0,43
20	+ 0,06	35	- 0,16	90	+ 0,51
15	- 0,08	40	+ 0,09	95	+ 0,69
10	- 0,31	45	+ 0,27	100	+ 0,79
- 5	- 0,47	50	+ 0,38	105	+ 0,83
0	- 0,56	55	+ 0,46	110	+ 0,84
+ 5	- 0,60	60	+ 0,52	115	+ 0,84
+ 10	- 0,61	+ 65	+ 0,56	+ 120	+ 0,82

The corrections to N.P.D. obtained by reflexion observations are the same with contrary signs.

The *Sidereal Intervals occupied by transits of the Diameters of the Sun, Moon, Jupiter, and Saturn's Ring*, from the Transit observations; and the *Vertical Diameters of the Sun, Moon, Venus, Jupiter, and Saturn*, from the Circle observations, compared with the same from the *Nautical Almanac*, are collected in pages 192—195.

The Sidereal Intervals are the differences of the concluded transits of the first and second limbs over the mean of the seven wires, corrections having been applied in the case of the Moon for the defect of illumination of one of the limbs, as stated in the notes to the Transits. The rule by which this correction has been calculated (given in the Introduction of the Cambridge Observations of 1835, p. xv) is to ascertain the Moon's distance in R.A. from the point of opposition to the Sun, and multiply this distance by the cosine of the Sun's declination, in order to obtain the length of the arc of a great circle drawn perpendicularly from the Sun's place on the meridian through the Moon's place. The required correction is then the versed sine of this arc on the Moon's surface, and is additive or subtractive according as it is applied to the second or first limb.

The Vertical Diameters of the Sun and Moon by observation, are the differences of the zenith distances, corrected for refraction and parallax, of the North and South limbs, deficiency of illumination being allowed for in the case of the Moon, (see page xviii).

Consequently they are true geocentric diameters, the effect of applying these corrections to the limbs being to reduce their places to those in which they would be seen from the Earth's centre. The Vertical Diameters of Venus, Jupiter, and Saturn, are the doubles of the semidiameters measured in the manner described in pages xvii and xviii.

The tabular intervals occupied by the transits of diameter, are taken, for the Sun, Moon, and Jupiter, from the Nautical Almanac. Those for Saturn's Ring are the intervals of transit of diameter derived from that work, and multiplied by 2,314, this being the tabular ratio of the axis major of the ring to the equatoreal diameter. The tabular vertical diameters of the Sun, Venus, Jupiter, and Saturn, are taken immediately from the Nautical Almanac: the Moon's is interpolated with second differences.

The differences between the observed and the tabular values of the intervals of transit and vertical diameters are exhibited for the purpose of obtaining corrections to the latter if required. In the instance of the Moon the tabular errors of the intervals of transit are converted into errors of diameter in are by multiplying the former by  $15 \times$  the inverse of the factor, the expression for which is given in p. ii.

### III. *Right Ascensions and North Polar Distances of the Centres of the Sun, Moon, and Planets, observed in the year 1840, with the Greenwich Mean Solar Times of transit of centre.*

The concluded Right Ascensions and North Polar Distances of bodies of the Solar System, contained in pages 198—207, are deduced from their Apparent R.A. and Geocentric N.P.D. in the foregoing part of the work, by applying certain corrections, of which an explanation will now be given.

The only corrections applied to the *Apparent Right Ascensions* are those for reducing observations of limbs to observations of centres. No corrections are required for the planets Pallas, Ceres, and Uranus, which are observed as stars; and no corrections would be required for observations in which both limbs are taken, if observations of limbs agreed with observations of stars. In Mr Baldrey's observations, discordances have been found between the observations of limbs and stars, and also between the observations of first and second limbs, which make it necessary to apply a correction in every instance of the observation of a limb. It is to be understood that both limbs were taken unless one is mentioned under the head of 'Limb observed,' and that in every instance both limbs of Jupiter and Saturn's Ring were taken.

When one Limb of the *Sun* is observed, the R.A. of centre is inferred from the observed R.A. of the Limb, by applying the sidereal time occupied by the transit of the semidiameter as given in the Nautical Almanac. The corrections for the discordances just mentioned, and the correction applied on the same account to the R.A. of centre from an observation of both limbs, are determined by the following considerations.

It appears by the comparison in pages 192 and 193 of the observed intervals occupied by the passage of the Sun's diameter across the meridian with the tabular intervals, that the mean excess of the former above the latter is  $+0^{\circ}.394$  by B's 119 observations, and  $+0^{\circ}.025$  by the remaining 13 observations, all which, excepting G's observation on Sept. 3, were taken by C. The former may be regarded as applying to a mean declination of  $15^{\circ}$  and the latter to a mean declination of  $10^{\circ}$ , considering the portions of the year in which the observations were respectively made. Hence if we assume the Tabular Diameter to be correct,\* the mean error of B's observations will be  $+0^{\circ}.381$ , and of C's  $+0^{\circ}.025$ . If C's observation on Aug. 1, which was manifestly a bad one, be excluded, the latter quantity is reduced to  $+0^{\circ}.007$ , which is so small that C's observations of first and second limbs may be assumed to accord with each other. It is reasonable to conclude therefore that they accord with his observations of stars. Let now B's observation of a first limb be  $x$  seconds too early, and of a second limb  $y$  seconds too late. Then  $x + y = 0.381$ .

\* The mean excesses of the Tabular above the observed Diameter of the Sun by the Circle observations of 1836, 1837, 1838, 1839, and 1840, are respectively,  $-0^{\circ}.12$ ,  $+0^{\circ}.10$ ,  $-0^{\circ}.16$ ,  $+0^{\circ}.57$ ,  $+0^{\circ}.39$ . The mean of all is  $+0^{\circ}.16$ .



The mean error of the Sun's Tabular R.A. by C's observations from Feb. 6 to Feb. 24, and from July 27 to Aug. 18 is  $-0^{\circ}.045$ . The mean error by B's observations made partly before and partly after those periods, viz. from Jan. 30 to Feb. 28, and from July 7 to Sept. 1, is  $-0^{\circ}.118$ , observations of single limbs being excluded. Supposing the difference between the two results to be owing to error in B's observations of limbs, we shall have  $\frac{1}{2}(x - y) = -0.118 + 0.045$ ; or  $x - y = -0.146$ . This and the foregoing equation give  $x = 0^{\circ}.117$ , and  $y = 0^{\circ}.263$ . In accordance with these results B's observations of the Sun's first limb have been increased by  $0^{\circ}.12$ ; his observations of the second limb have been diminished by  $0^{\circ}.26$ , and the means of observations of both limbs have been diminished by  $0^{\circ}.07$ .

The Right Ascension of the *Moon* at the time of transit of centre is deduced from the observed R.A. of the limb by applying the sidereal time occupied by the transit of the semidiameter, taken, first, from the section of Moon-culminating stars in the Nautical Almanac, and then corrected for an error in the Moon's Tabular semidiameter of  $2''.31$  in defect.

The correction  $+2''.31$  of the Moon's tabular semidiameter was obtained in the Introduction to the Volume for 1838, (p. lxi) from observations in 1837 and 1838, and agrees with the result of the meridian observations of both limbs in 1839. The correction in time applied to the tabular interval of transit of semidiameter is  $2''.31$  multiplied by one-fifteenth the factor in page ii. This amounts to  $0''.16$  from  $0^{\circ}$  to  $14^{\circ}$  of Declination; to  $0''.17$  from  $14^{\circ}$  to  $24^{\circ}$ , and to  $0''.18$  for declinations above  $24^{\circ}$ .

The mean amount of discordance between B's observations of first and second limbs deduced from the transits of the Moon in 1840 in which both limbs were observed, after correcting for error of the Moon's tabular semidiameter and defect of illumination, is  $0''.25$ . The amount derived from observations in 1839 was  $0''.30$ . The latter being more nearly equal to the discordance in observations of the Sun's limbs, is adopted in the present Volume, but is not wholly applied to the second limb. For the reasons adduced above with reference to the Sun, each observation by B of the Moon's 1 L. is increased by  $0''.10$ , and each observation of the second limb is diminished by  $0''.20$ .

When one limb of a *Planet* is observed, the R.A. of centre is inferred from the observed R.A. of limb, by applying the sidereal time occupied by the transit of semidiameter, taken without alteration from the Nautical Almanac, excepting in the instance of Venus. For this planet the tabular value is increased by the fractional part  $0.032$  in accordance with the result of the calculations in p. xx of the Introduction to the Volume for 1839. Also to every observation by Mr Baldrey of the second limb of a Planet a correction is applied for discordance in the observations of first and second limbs, assuming the latter only to be erroneous. The correction for Mercury is  $-0''.20$ ; for Venus  $-0''.30$ ; for Jupiter  $-0''.20$ ; and for Saturn's Ring  $-0''.28$ . These values are adopted on the following considerations.

The observations of *Venus's* 2 L. by B compared with those of G and C from Feb. 10 to Feb. 23, shew a discordance somewhat greater than the amount  $0''.21$  applied in 1839; while the observations of 1 L. by C from Aug. 3 to Aug. 17, and that by G on Sept. 3, appear to agree with B's observations. The apparent diameter of Venus in 1840 was not much greater than that of Mars in 1839, when the discordance for the latter planet was  $0''.37$ . Hence the adopted correction for Venus in 1840 is  $-0''.30$ , which is wholly applied to the second limb.

By seven observations of *Jupiter* in 1840 by B, the excess of the observed time of transit of diameter above the Tabular time is  $0''.27$ , which is very nearly the same as in 1839. Hence for the reasons given in p. xiv of the Introduction for that year, the correction applied to the apparent R.A. of centre is  $-0''.10$ .

Only two observations of *Saturn* were taken by B in 1840. These are corrected as in 1839 by  $-0''.14$ .

The observations of *Mercury's* 2 L. by B appear to require correction, but there are no means of ascertaining the precise amount. The value  $-0''.20$  is adopted as probably not exceeding the truth.

The *North Polar Distance of Centre* from observation, is deduced from column 10 of the pages containing the *Calculation of Geocentric N.P.D.*, by correcting the N.P.D. of that column, or, in the instances of the Sun and Moon, the mean of the different values, for error of colatitude and discordance of zenith points. For the Moon there are also applied the correction  $2''.31$  for error of semidiameter, small corrections for curvature of path omitted in the calculation of the concluded circle readings, and an additional correction, in every other instance insensible, for the position of the circle. The N.P.D. by

the observation is that for the time of passing the middle wire; and as this time does not in general coincide with the meridian passage, a correction is required for the change of the Moon's N.P.D. in the interval. By transits of known stars observed with the Circle and Molynaux, and referred by comparison of clocks to Hardy, the intervals between the meridian passage and the passage across the middle wire were found for various polar distances, whence, by the intervention of graphical construction, the intervals corresponding to the Moon's N.P.D. at the times of observation were inferred. The variations of N.P.D. in these intervals were then calculated from the variations for  $10^m$  in the hourly ephemeris of the Nautical Almanac, and applied as corrections to the observed N.P.D.

The following are the names and approximate N.P.D. of the stars observed for the position of the Circle from the beginning of the year to June 29, (when it was removed from the wall,) and from June 29, to the end of the year; together with the calculated excesses of the observed times of transit across the middle wire above the times of meridian transit, by means of which the Circle's position may be judged of. It was not thought worth while to give the observations in detail: the calculations were carefully verified.

*Transits for the position of the Circle before June 29.*

Day of Observation 1840.	Star.	Approximate N.P.D.	Interval from meridian to middle wire.	Day of Observation 1840.	Star.	Approximate N.P.D.	Interval from meridian to middle wire.
Feb. 7	$\alpha$ Aquilæ.....	81.33	-0,74	June 19	$\alpha$ Herculis.....	75.25	+0,67
10	$\alpha$ Aquilæ.....	81.33	-0,45	...	$\alpha$ Ophiuchi.....	77.19	+0,38
12	Castor.....	57.46	+0,50	...	$\mu^1$ Sagittarii.....	111.6	-2,11
...	Procyon.....	84.22	-0,96	...	$\zeta$ Aquilæ.....	76.22	+0,49
...	Pollux.....	61.36	+0,26	...	$\gamma$ Aquilæ.....	79.46	+0,27
Mar. 23	$\alpha$ Pegasi.....	75.39	-0,11	...	$\alpha$ Aquilæ.....	81.33	+0,23
April 3	$\alpha$ Pegasi.....	75.39	-0,39	...	$\beta$ Aquilæ.....	83.59	+0,14
13	$\alpha$ Andromedæ...	61.48	+0,55	20	$\mu^1$ Sagittarii.....	111.6	-1,92
15	$\alpha$ Andromedæ...	61.48	+0,94	...	$\alpha$ Lyrae.....	51.22	+2,24
29	Aldebaran.....	73.49	-0,15	25	$\mu^1$ Sagittarii.....	111.6	-1,90
May 1	Aldebaran.....	73.49	+0,19	29	Arcturus.....	69.59	+1,31
				...	$\epsilon$ Bootis.....	62.15	+1,94
				...	$\alpha^2$ Librae.....	105.22	-1,73

*Transits for the position of the Circle after June 29.*

Day of Observation 1840.	Star.	Approximate N.P.D.	Interval from meridian to middle wire.	Day of Observation 1840.	Star.	Approximate N.P.D.	Interval from meridian to middle wire.
Aug. 2	Procyon.....	84.22	-0,76	Sept. 10	$\alpha^2$ Librae.....	105.22	-2,23
5	Pollux.....	61.36	+0,84	...	$\alpha$ Serpentis.....	83.4	-0,40
6	Castor.....	57.46	+0,81	...	$\alpha$ Ophiuchi.....	77.19	+0,05
...	Procyon.....	84.22	-0,71	11	$\beta$ Aquarii.....	96.16	-1,45
...	Pollux.....	61.36	+0,53	...	$\alpha$ Pegasi.....	75.39	+0,36
Sept. 5	$\gamma$ Aquilæ.....	79.46	-0,62	...	$\alpha$ Hydrae.....	97.58	-1,60
...	$\epsilon$ Pegasi.....	80.51	-0,58	...	Regulus.....	77.15	-0,11
...	$\zeta$ Pegasi.....	80.0	-0,53	12	$\alpha$ Lyrae.....	51.22	+1,80
...	$\alpha$ Pegasi.....	75.39	-0,31	...	$\alpha$ Andromedæ...	61.48	+1,29
...	Rigel.....	98.23	-1,79	...	$\gamma$ Pegasi.....	75.42	+0,24
...	$\beta$ Tauri.....	61.32	+0,48	17	Fomalhaut.....	120.28	-3,75
...	$\epsilon$ Orionis.....	90.25	-1,22	...	$\alpha$ Pegasi.....	75.39	+0,30
...	$\alpha$ Leporis.....	107.57	-2,93	Nov. 20	$\alpha$ Ophiuchi.....	77.19	+0,08
...	$\epsilon$ Orionis.....	91.19	-1,31	26	$\epsilon$ Bootis.....	62.15	+0,67
...	$\alpha$ Orionis.....	82.38	-0,73	...	$\alpha$ Coronæ Bor...	62.45	+0,90
6	$\epsilon$ Orionis.....	91.19	-1,12	27	$\epsilon$ Bootis.....	62.15	+0,79
7	$\alpha$ Hydrae.....	97.58	-1,53	...	$\alpha$ Coronæ Bor...	62.45	+1,04
...	Regulus.....	77.15	-0,04	28	$\alpha$ Herculis.....	75.25	-0,08
8	$\beta$ Aquarii.....	96.16	-1,19	Dec. 9	$\alpha$ Aquilæ.....	81.33	-0,26
...	$\epsilon$ Pegasi.....	80.51	+0,01	...	$\beta$ Aquilæ.....	83.59	-0,47
10	$\epsilon$ Bootis.....	62.15	+0,90				



The following mean results, derived from the foregoing tables by graphical construction, were employed in deducing by interpolation the required intervals for the Moon.

*Intervals from meridian transit to transit across middle wire.*

North Polar Distance.	Interval before June 29.	Interval after June 29.
60 .....	+ 0,98 .....	+ 1,04
70 .....	+ 0,40 .....	+ 0,33
80 .....	- 0,17 .....	- 0,39
90 .....	- 0,74 .....	- 1,10
100 .....	- 1,32 .....	- 1,80
110 .....	- 1,90 .....	- 2,52
120 .....	- 2,47 .....	- 3,23

The *Greenwich Mean Solar Time* of transit of center, corresponding to the Right Ascension of center from observation, is found by adding to the equivalent, in solar time, of the sidereal time, the next preceding mean time of transit of the first point of Aries, diminished by  $23^{\circ},48$ , as the Cambridge Observatory is  $23^{\circ},54$  east of the Greenwich Observatory. For greater expedition the *seconds* of the Greenwich Mean Solar Time are found by adding  $60^{\circ} - 23^{\circ},48$ , or  $36^{\circ},52$  to the seconds of the mean time of transit of the first point of Aries and the seconds of the solar equivalents, the hours and minutes being extracted from the approximate mean times of meridian passage in the Nautical Almanac.

Whenever a Circle observation is not accompanied by a Transit observation, the Greenwich Mean Solar Time is calculated from the R.A. of centre at meridian transit in the Nautical Almanac, corrected for the difference of longitude of the Greenwich and Cambridge Observatories by subtracting  $0,00654 \times$  the horary variation of R.A. given in that work.

The *seconds of tabular R.A. and N.P.D.*, from which the *Errors of Tables* are deduced, have been obtained for the Sun and Planets, by subtracting from the R.A. and N.P.D. at meridian transit in the Nautical Almanac,  $0,00654 \times$  the horary variations in R.A. and N.P.D. As the accurate Ephemeris of Pallas in the Nautical Almanac extended only to Aug. 4, the tabular R.A. on Aug. 6 was derived from those on Aug. 1, 2, 3, and 4, by interpolation.

The seconds of tabular R.A. of the Moon's center have been derived from the R.A. of the limb in the Section of Moon-culminating stars in the Nautical Almanac, by applying the sidereal time occupied by the transit of the semidiameter as there given, and subtracting  $0,00654 \times$  the variation of R.A. for  $1^h$  of longitude. The seconds of tabular N.P.D. of center have also been obtained from the Section of Moon-culminating stars, by adding  $0,00654 \times$  the variation of declination in  $1^h$  of longitude.

Following the column of errors of the tables of the Moon in N.P.D. are two others, the first of which exhibits the effect on the errors in N.P.D. of increasing the parallax one-thousandth part; and the other, the effect of supposing the Earth spherical with the same equatoreal radius. The last mentioned column is formed by taking the parallax computed, as before stated, supposing the ratio of the axes to be that of 297 to 298, from the parallax separately computed, supposing the Earth to be spherical, and gives the means of readily altering that ratio if required.

The *Determination of the Position of the Ecliptic and of the mean error of the assumed Right Ascensions of the Fundamental Stars from the Circle Observations of the Sun in 1840* in pages 207 and 208, has been inserted to give the means of inferring absolute errors of the Solar, Lunar, and Planetary Tables from the observations of this Volume. The calculations have been made on the following principles.

The true longitude  $\lambda$ , and true North Polar Distance  $\Delta$ , of the Sun's center, and the true obliquity  $I$ , at any instant, are related to each other by the equation,

$$\cos \Delta = \sin \lambda \sin I,$$

and the tabular longitude  $\lambda + \delta\lambda$ , the tabular North Polar Distance  $\Delta + \delta\Delta$ , and the assumed obliquity  $I + \delta I$ , in the Nautical Almanac, for the same instant, by the equation,

$$\cos (\Delta + \delta\Delta) = \sin (\lambda + \delta\lambda) \sin (I + \delta I).$$

Hence, neglecting powers of the errors  $\delta\lambda$ ,  $\delta\Delta$ ,  $\delta I$ , above the first,

$$\delta\Delta + \operatorname{cosec} \Delta \cos \lambda \sin I \delta\lambda + \operatorname{cosec} \Delta \sin \lambda \cos I \delta I = 0 \dots\dots\dots (A).$$

Now it is assumed that the variations of  $\lambda$  and  $I$  in the course of a year are in accordance with the theoretical calculations, and consequently that their values, as given in the Nautical Almanac, are affected, if by any, by constant errors, which it is proposed to find.

The actual errors of the Solar Tables in N.P.D. cannot be immediately derived from the errors in the columns of pages 198—200, because, though mere errors of observation may be supposed eliminated in the mean result from a large number of observations, there may still remain uncorrected instrumental errors and errors of reduction. Representing therefore by  $a$  any error in N.P.D. taken from those columns, and by  $p$  the excess of the observed above the true N.P.D., we shall have,

$$\delta\Delta = (\text{Tabular N.P.D.} - \text{observed N.P.D.}) + (\text{observed N.P.D.} - \text{true N.P.D.}) = a + p;$$

and as we are ignorant of the causes to which  $p$  may be owing, it is assumed to be constant within the limits of the tropics. The formula (1) in page 208 is obtained by putting  $m$  for  $\sin I \delta\lambda$ ,  $n$  for  $\cos I \delta I$ , and  $a + p$  for  $\delta\Delta$  in equation (A).

Instead of forming a separate equation from this formula for every different value of  $a$ , the whole number of observations is divided into twelve equal groups, the mean of the values of  $a$  in each group is considered to correspond to the day nearest the numerical mean of the days of observation in the group, and  $\lambda$  and  $\Delta$  are taken for the mean noon of the mean day from the Nautical Almanac. In this manner twelve different equations were formed. The rest of the calculation for finding  $m$ ,  $n$ , and  $p$ , requires no explanation additional to that given in page 208.

Let  $\delta R$  now represent the mean excess for the year of the Sun's tabular R.A. above the true, (which is not sensibly different from the mean excess of the tabular longitude above the true); let  $\beta$  be the mean error of the tables in R.A. as derived from the columns of pages 198—200; and suppose the mean excess of the assumed R.A. of the fundamental stars above the true to be  $q$ . Then,

$$\delta R = (\text{Tabular R.A.} - \text{observed R.A.}) + (\text{observed R.A.} - \text{true R.A.}) = \beta + q;$$

and as  $\delta R$  is known from the equation  $m = \sin I \delta\lambda$ ,  $q$  is also determined.

By this calculation the mean excess of the assumed R.A. of the fundamental stars above the true is found to be  $+ 0^{\circ}.018$ . The result from the observations of 1839 was  $- 0^{\circ}.033$ , with the same values of the assumed R.A. The difference between the two results is in great measure owing to difference in the corrections of the observed R.A. for discordant observations of first and second limbs. The mean correction in 1839 was  $- 0^{\circ}.139$ , while the mean correction applied to the observations of 1840 is  $- 0^{\circ}.063$ . If this had been the same as the former, the error of the assumed R.A. would have been  $0^{\circ}.058$  in defect.

The *Comparisons of Clocks and Chronometers* in page 210 are used in the reduction of the equatorial observations that follow. When required for occultations of fixed stars by the Moon, the comparisons of Graham with Hardy were generally made for greater accuracy with a solar chronometer by coincidence of beats.

## EQUATOREAL OBSERVATIONS.

THE observations made with the Northumberland and Five-feet Equatoreals are all, with the exception of occultations of fixed stars by the Moon, either measures of small differences of Right Ascension and North Polar Distance, or measures of apparent Diameters, and consequently cannot be sensibly affected by small deviations of the axis of collimation, and of the declination and polar axes, from accurate adjustment. No alteration of the adjustments of either instrument was made in 1840.

I. *Differences of Right Ascension and North Polar Distance of Pallas and adjacent stars, observed with the Northumberland Equatoreal, and Calculation of Geocentric R.A. and N.P.D. of the Planet*, in pages 212—215.

The Differences of *Right Ascension* (p. 212) are micrometer measures taken while the instrument was carried by clock-movement, the star and planet being in each instance sufficiently near each other to allow of being bisected simultaneously. The times by the chronometer are the times of bisection, and are converted into sidereal times by the comparisons in p. 210. As the reading of each micrometer increases with the motion of the wire towards the micrometer-head, the difference of R.A. is measured (the wires being parallel to a circle of declination) by the difference of the sum of the readings for bisection of the objects and the sum of the coincidence readings. This measure is converted into arc by multiplying by  $16''.970$ , which is the value of one revolution of each micrometer as determined by observations recorded in p. xxxii of the Introduction to the Volume for 1839. The apparent excess of the R.A. of Pallas above the R.A. of the star is obtained by multiplying the difference of micrometer readings in arc by one-fifteenth the cosecant of the mean of the N.P.D. The sign of the result is determined by the position of the micrometer-heads relatively to the heavens, which is mentioned in the notes. No correction was required for difference of refraction.

For the *Calculation of the Geocentric Right Ascensions* (p. 213,) the hour angle from the meridian is the difference between the sidereal time of observation and the approximate R.A. of the *Planet* known from the observation itself. The correction for Parallax is calculated with this hour angle and the approximate N.P.D. of the Planet known from the observations of N.P.D. in p. 214, by the formula in p. lxxxvii of the Introduction to the Volume for 1838, the horizontal equatoreal parallax being taken from the Nautical Almanac. The Geocentric is derived from the apparent excess of the R.A. of Pallas above the R.A. of the star by applying the correction for parallax; and the concluded R.A. of Pallas is the algebraic sum of the geocentric excess and the assumed R.A. of the star, which latter is obtained from the mean R.A. Jan. 1. 1840 in the subjoined list, by applying corrections calculated by the formula in p. x. The seconds of Tabular R.A. from which the Tabular Error is deduced, are found by interpolating with second differences from the Nautical Almanac for the Greenwich Mean Solar Time in the preceding column, which is calculated in the usual way from the sidereal time of observation of the Planet. The tabular R.A. for Aug. 6 was calculated in the manner mentioned in p. xxv.

The differences of *North Polar Distance* (p. 214) were all measured while the Instrument was carried by the clock-movement, and, excepting on July 8, the star and Planet were bisected simultaneously. On that day the two objects were brought alternately to the same part of the field by the Sector-rack and Hour Circle clamp, and the time of bisection of each by the same fixed wire was noted. The difference of N.P.D. is thus measured by the difference of readings of the Sector microscope-micrometer, which is

converted into arc by means of the values of one interval between the Sector divisions and of one micrometer revolution given in the notes. These values were determined by observations recorded in pages xxxiii and xxxiv of the Introduction to the Volume for 1839. To avoid any error arising from the motion of the Instrument each observation of the Planet is compared with the preceding and following observations of the star, and a mean result taken. On all the other days the measures of difference of N.P.D. in arc are obtained exactly in the manner described above with reference to the measures of differences of R.A. The 'apparent excess of N.P.D. of Pallas above N.P.D. of Star,' is the measure of difference of N.P.D. with the addition of a small correction for refraction depending on the difference of hour angle and N.P.D. of the star and planet at the times of bisection; and the sign of the result is determined on July 8 by the Sector readings increasing with the N.P.D., and on the other days by the position of the micrometer-heads relatively to the heavens, which is mentioned in the notes.

With respect to the *Calculation of Geocentric North Polar Distances* (p. 215,) it is only necessary to state that the Hour angle from the meridian is the difference between the sidereal time of observation of the *Planet*, and its approximate R.A. known from the observations of R.A. in p. 212, excepting on July 27 when the difference of R.A. of the star and planet was noted roughly, no exact measures having been taken. The rest of the calculation is exactly analogous to that in p. 213. By the results of the observations of July 8 it appears that either an error of one revolution was committed in reading the Sector microscope, or that there is some fault in the action of the Sector. The results on the former supposition are those not in brackets.

The coincidence readings of the micrometer wires A and B adopted in the observations described above, were derived from the following coincidences which I took July 11. 8<sup>h</sup>, (1840). The magnifying power was 215, which was that used in the observations. The wire A was set at 10',000.

Coincidence reading of B at the cross wire .....	10,030	mean of 8 trials.
..... at the comb edge of field .....	9,994	..... 2 .....
..... at the opposite edge .....	10,058	..... 2 .....

In the observations of difference of R.A. July 9, the star was bisected by B on the side of the cross-wire opposite the comb at the distance of one-third the width of the field. The coincidence reading is therefore  $10',030 + 0',021$ , or  $10',051$ .

In the observations of difference of N.P.D. on the same day, Pallas was bisected by B on the comb side of the cross wire at the distance of one-sixth the width of the field. Therefore coincidence reading =  $10',030 - 0',011$ , or  $10',019$ .

As the position of the object bisected by B was not noted on the other days, the adopted coincidence is that at the cross-wire, viz.  $10',030$ .

The wire A is always supposed in the calculations to be that which was equatorally adjusted, but as no note was made to that effect, this supposition must be regarded as doubtful.

The following are the assumed mean R.A. and N.P.D. Jan. 1. 1840 of the stars of reference in the observations of Pallas, as determined by Transit and Circle observations in 1840.

Designation of Star.	Mean R.A. Jan. 1, 1840.			Mean N.P.D. Jan. 1, 1840.		
	A.	m.	s.	°	'	"
* (c) ..	18	20	21,14	71	49	51,36
* (b) ..	18	25	1,03	70	13	28,55
* (a) ..	18	38	48,52	68	10	41,62

II. *Differences of R.A. and N.P.D. of Galle's Second Comet and adjacent stars, observed with the Northumberland Equatorial, and the Five-feet Equatorial; and Calculation of Geocentric R.A. and N.P.D. of the Comet*, in pages 218—227.

The observations of Differences of *Right Ascension* with the *Northumberland Equatorial* (p. 218) were made by means of the Hour Circle while the Instrument was carried by

the Clock. The times of observation by chronometer X are the times of bisecting the comet or star by the straight boundary of the field, which by the Position Circle was placed perpendicular to the equatoreal direction. These are converted into sidereal times by the comparisons in p. 210. The Hour Circle Reading is that of the *moveable* index, which is attached to the frame of the polar axis, and may be moved with it on the Hour Circle either by hand, or, when the Hour Circle is clamped to the polar frame, by a tangent-screw. If the Clock were exactly regulated to sidereal time, and the Hour Circle readings cleared of the effect of refraction, the difference of R.A. of the comet and star would be the difference of the Hour Circle readings. Corrections are therefore required on those two accounts.

The corrections for *refraction* in the *ninth* column are calculated from the hour angles and N.P.D. in the *seventh* and *eighth* columns, with the same degree of accuracy as for observations with the Mural Circle, Bessel's formula being made use of. The hour angles are derived from the sidereal times of observation, the known R.A. of the star, and the differences of R.A. of the star and comet given by the observations, and are accurate to the nearest second. The N.P.D. are accurate to the nearest tenth of a minute, and are obtained from the known N.P.D. of the star, and the difference of N.P.D. of the star and comet derived from the observations of N.P.D., allowance being made for change of the comet's place by the Ephemeris used in a subsequent part of the calculations.

The corrections for *rate of the Hour Circle* were obtained by first correcting the Hour Circle readings for refraction, then deriving an hourly rate from the difference of the corrected readings for the first and last observations of the star, and lastly calculating proportional parts of the hourly rate for the several intervals of the observations from the first. This supposes the rate to be uniform during the whole of the observations. Since after correcting for refraction the Hour Circle reading for the last observation of the star is greater than that for the first, the rate is a *gaining* one, and the correction is *negative*.

In the *Calculation of Geocentric Right Ascensions*, (p. 219) the apparent excess of the R.A. of the comet above the R.A. of the star is (excepting for N°. 1) the mean of the corrected differences of Hour Circle readings found by comparing the observation of the comet with both the preceding and the following observation of the star. The sign affixed is determined by the circumstance that the Hour Circle reading is greater as the R.A. is greater, the order of the Circle's graduation being from South through East to North.

The remainder of the Calculation is conducted in the same manner as for the observations in R.A. with the Five-feet Equatoreal, and will be explained further on.

The observations of differences of *North Polar Distance*, (p. 218) and *Calculation of Geocentric North Polar Distances*, (p. 219) require no remark after what has been already said with reference to the observations of the comet in R.A. and of Pallas in N.P.D.

The observations of differences of *Right Ascension with the Five-feet Equatoreal* in pages 220 and 222, were made with the instrument fixed during each set. The comet was observed either on its entrance at the comb, or on departing at the straight boundary, or, when not too faint, at one of the wires. In the greater number of instances the star was observed at the same place as the comet. The place of observation of each object is mentioned in the notes. The noted time of observation is converted into sidereal time by means of the comparisons in p. 210, and a calculation is then made for reducing the sidereal time of observation to the time of passing the middle wire, *without* taking account of the comet's change of R.A. This correction, which is put in the *sixth* column, is the equatoreal interval of the place of observation from the middle wire, multiplied by the cosecant of the 'approximate N.P.D. of object' in the last column but one. The following are the adopted equatoreal intervals:—



Entrance.	Wire I.	II.	IV.	V.	Departure.
- 48 <sup>s</sup> .58	- 20 <sup>s</sup> .98	- 10 <sup>s</sup> .33	+ 10 <sup>s</sup> .55	+ 21 <sup>s</sup> .11	+ 69 <sup>s</sup> .74

These are the intervals that were adopted for the observations of Galle's First Comet. (See Introduction to Vol. XII., p. xxxviii.)

It must here be remarked that partly in consequence of the stopping of Graham as mentioned in the notes, and partly from the observer having neglected to make comparisons, the conversion of the noted times into sidereal times is in a great measure conjectural after March 3. The following are the adopted errors and daily rates of Graham:—

Day of Observation.	Graham slow at 0 <sup>h</sup> of Sidereal Time.	Adopted losing rate.	Day of Observation.	Graham slow at 0 <sup>h</sup> of Sidereal Time.	Adopted losing rate.
Feb. 25 .....	- 3 <sup>s</sup> .58 .....	2 <sup>s</sup> .15	March 3 .....	+ 19 <sup>s</sup> .45 .....	6 <sup>s</sup> .00
29 .....	+ 5 <sup>s</sup> .75 .....	3 <sup>s</sup> .80	4 .....	+ 26 <sup>s</sup> .05 .....	7 <sup>s</sup> .20
March 2 .....	+ 14 <sup>s</sup> .35 .....	4 <sup>s</sup> .80	6 .....	+ 45 <sup>s</sup> .25 .....	9 <sup>s</sup> .60

No comparison having been made after March 3, the rates on March 4 and 6 are adopted on the supposition that the change of rate went on after March 3 in the same manner as before. For the observations on March 7 it is supposed that Graham was set going nearly to true sidereal time; but this is doubtful.

The following are the adopted errors and daily rates of chronometer *U*:—

Day of Observation.	<i>U</i> fast at 0 <sup>h</sup> of Sidereal Time.	Adopted gaining rate.	Day of Observation.	<i>U</i> fast at 0 <sup>h</sup> of Sidereal Time.	Adopted gaining rate.
March 3 .....	1 <sup>m</sup> . 36 .....	4 <sup>s</sup> .00	March 19 .....	1 <sup>m</sup> . 40 .....	4 <sup>s</sup> .00
7 .....	1 <sup>m</sup> . 52 .....	4 <sup>s</sup> .00	24 .....	1 <sup>m</sup> . 0 .....	4 <sup>s</sup> .00

By the comparisons of *U* with Hardy Feb. 24, 29, and March 3, the mean daily gaining rate was found to be very nearly 4<sup>s</sup>. No comparison having been made after March 3, the subsequent error of *U* is calculated from that on March 3 by assuming the above rate to continue to March 24; and it being the practice to put *U* back 1<sup>m</sup> when the error is near 2<sup>m</sup>, this is supposed to have been done between March 7 and 19, and again between March 19 and 24.

As the apparent motion of the comet both in R.A. and N.P.D. was not rapid between March 7 and 24, the results of the observations cannot be very materially affected by the uncertainty as to the sidereal times of observation.

The 'approximate hour angle from the meridian' in the *seventh* column is in general the difference between the sidereal time of observation of the star and its known R.A. When the comet and star were not observed at the same part of the field, the difference of hour angle is known from the difference of the reductions to the middle wire in column 6, whence the hour angle for the comet is readily inferred. The 'approximate N.P.D. of object' in the *eighth* column is derived for the comet from the known N.P.D. of the star and the difference of N.P.D. of the star and comet given by the observations of N.P.D. in pages 224, 226, and 228. The corrections for Refraction in R.A. in the *ninth* column were calculated from the data in the two preceding columns by using Bessel's formula, attention being paid also to the indications of the Barometer and Thermometer near the times of observation. It was thought to be sufficiently accurate to use the true zenith distances of the objects instead of the zenith distances affected by refraction, as any error on this account must very nearly disappear on taking the *difference* of the refractions of the star and comet.

In pages 223 and 225 containing the *Calculation of Geocentric Right Ascensions* of the comet, the 'corrected time of Transit' is the algebraic sum of the sidereal time of observation, the reduction to the middle wire, and the correction for refraction in R.A. The 'apparent excess of the R.A. of the comet above the R.A. of the star,' is found by subtracting algebraically the corrected time of Transit for the star, or the mean of the times when the star was observed at several wires, from the corrected time of transit for the comet. On March 6 the comet was in one instance compared with two stars in the same position of the instrument, and the two results are calculated separately.

The 'corrections for Parallax in R.A.' were calculated from the hour angles and approximate N.P.D. of the comet on the opposite pages, by the formula in p. lxxxvii. of the Introduction to Vol. xi., the log. distance being interpolated from the Ephemeris in the *Astronomische Nachrichten*, N°. 399, p. 237.

The 'assumed R.A. of the stars' were calculated in the usual manner from their mean R.A. The following are the assumed mean R.A. and N.P.D. Jan. 1, 1840 of the stars of reference in the comet observations, as determined by Transit and Circle Observations in 1840 and 1841.

Designation of Star.	Mean R.A. Jan. 1, 1840.			Mean N.P.D. Jan. 1, 1840.		
	A.	M.	S.	°.	'	"
ξ Andromedæ .....	1	12	56,79	45	18	42,81
* (I).....	1	16	4,71	55	6	11,70
* (II) .....	1	21	48,61	56	39	16,29
ν Andromedæ .....	1	27	25,83	49	23	51,43
* (III) .....	1	27	43,62	57	57	57,39
* (IV) .....	1	33	8,94	59	40	19,63
α Trianguli .....	1	43	58,58	61	12	13,71
α Arietis.....	1	58	10,07	67	17	50,07
θ Arietis.....	2	9	14,18	70	50	32,47
* (V).....	2	13	8,78	70	14	51,79

The 'concluded R.A. of the Comet' is the algebraic sum of the assumed R.A. of the star, the apparent excess of R.A. of the comet, and the parallax correction. The 'Greenwich mean solar times' were all calculated from the sidereal times of observation of the comet, and the 'Interpolated R.A. of comet' were obtained for those times from the Ephemeris in the *Astronomische Nachrichten*, allowing 53<sup>m</sup>. 35<sup>s</sup>.5 for the difference of the meridians of Berlin and Greenwich. Consequently no error has been committed by not taking account of the comet's apparent motion in calculating the reductions to the middle wire, as stated in p. xxix. The 'Error of Interpolated R.A.' is the algebraic excess of the interpolated above the concluded R.A. of the comet.

The observation of *Differences of N.P.D. with the Five-foot Equatoreal* in pages 224, 226, and 228, were made with the Instrument fixed during each set, the Telescope moving only in N.P.D. The part of the field at which the bisection was made is stated in the notes, unless it had previously been mentioned in the notes to the observations of R.A. The times of bisection of the comet and star are put in the *fourth* column, and are converted into the sidereal times of the *fifth* column in the manner already explained.

In the greater number of instances the difference of N.P.D. of the comet and star was measured by the Declination Circle. The pointer reading is put in the *sixth* column; the microscope A or B is mentioned in the *seventh* column; and the microscope readings are in the *eighth*. When the difference of N.P.D. was not too large it was measured by one or both of the micrometer wires. The micrometer used is also mentioned in the seventh column, and the micrometer reading is put in the next column. It is to be understood, when no micrometer is mentioned, that the object was bisected by the fixed wire.

The corrections for errors of division in the *ninth* column were all taken from the Tables in pages xlviii and lvi—lxi of the Introduction to the observations of 1835, and from that in pages lxxxiii and lxxxiv of the Introduction to the observations of 1838, with the exception of the corrections for 247°.35' and 67°.35'. These were inferred from the corrections for 247°.30' and 67°.30', in p. lviii of the former Introduction, by measuring the intermediate spaces of 5' with one of the microscope-micrometers, allowance being made for its error of Runs.

The corrections for Runs in the *tenth* column are calculated according to the rule given in page xiv. The adopted runs for arcs of 5' are +4'',7 for microscope A, and +0'',2 for microscope B. These values are the mean results of runs taken in five different positions of the declination circle at midnight of Nov. 4, 1839, and agree nearly with more recent determinations.

After the printing of the observations it was discovered that the corrections for Runs had been all applied with a wrong sign. For the concluded N.P.D. of the Comet and the errors of Interpolated N.P.D. which result when this mistake is corrected, see the *Additions* to this Introduction.

The concluded reading of the Declination Circle in the *eleventh* column is the mean of the microscope readings corrected for errors of division and for runs.

The apparent excess of the N.P.D. of the comet above the N.P.D. of the star in the *twelfth* column, when measured by the declination circle, is obtained by subtracting the concluded reading for the star from that for the comet, the circle reading increasing with the N.P.D. When the objects were bisected, one by the fixed and the other by a micrometer wire, the difference of N.P.D. is the difference of the micrometer readings for bisection and for coincidence with the fixed wire, converted into arc by multiplying by 33'',400; and when they were bisected by the two micrometer wires, it is the difference of the sum of the coincidence readings and the sum of the bisection readings, similarly converted into arc. The sign of the result is determined by the circumstance that the micrometer readings increase as the wires move towards the micrometer-heads, and by the position of the micrometer-heads relatively to the heavens, which is mentioned in the notes. The adopted coincidences are derived from observations made on Oct. 24, 1839, and recorded at p. xxxv. of the volume for that year.

The 'approximate Hour angles from the meridian' in the pages containing the *Calculation of Geocentric North Polar Distances*, are either the same as in the observations of differences of R.A., or are deduced from them by allowing for the intervals between the positions in the field at which the observations were respectively made, as stated in the notes. The 'approximate N.P.D.' are the same as for the observations of R.A. With these data the 'Refractions in N.P.D.' are calculated in the manner employed for the refractions in R.A. The remainder of the Calculation of Geocentric N.P.D. is precisely analogous to the Calculation of Geocentric R.A. already described, and requires no additional remarks. In two instances only (Nos. 49 and 58) the concluded N.P.D. of the comet was obtained without reference to a star, by applying index errors. These were obtained in each case from observations of the N.P.D. of a star near the comet made shortly after the comet observation, by correcting the instrumental N.P.D. by accurate values of the refraction, and comparing the mean result with the known N.P.D. of the star. The amount of index error is stated in the notes.

The *Remarks on the appearance of the Comet* (p. 230) shew the difficulty there was in always fixing on the same point of this comet for bisection, and the different estimations different observers might form of its center. Much of the discrepancy in the results of the observations is probably owing to this circumstance.

III. *Miscellaneous observations made with the Northumberland and Five-feet Equatorials*, in pages 232—235.

As these observations are accompanied by explanations, it is necessary to make but very few remarks here.

With respect to the observations of the *Moon's apparent Diameter* by transits of the bright and dark limbs, which in each instance were made within four or five days after the New Moon, it is observable that the mean result gives a value of the Diameter con-



siderably less than that obtained by previous observations of the Full Moon. I do not, however, attach much weight to this result on account of the difficulty of observing transits of so faint an object as the dark Limb.

There will be occasion to adduce the observations by which the value of one revolution of the divided-glass eye-piece N°. 9 in p. 234, was determined, in speaking hereafter of the miscellaneous observations of 1841.

The correction of Jupiter's Equatoreal Diameter for defect of illumination (in p. 234) was calculated on the supposition that Jupiter's axis was perpendicular to the plane of the ecliptic, which the observations of the apparent position of his Equatoreal Diameter (in p. 235) shew to have been very nearly the case. At the date of the measures of the Equatoreal Diameter, the difference of the Heliocentric Longitudes of the Earth and Jupiter was almost exactly 90°, and the angle subtended at Jupiter by the radius of the Earth's orbit was 10°.7'. The correction is the semidiameter multiplied by the versed sine of this angle.

IV. *Occultations of fixed stars by the Moon, and Calculation of the Occultations*, in pages 238—244.

The sidereal times of the *Occultations* were derived from the noted times, by the comparisons in p. 210, and the Greenwich Mean Solar Times were calculated in the usual manner. For the *Calculations of the Occultations*, the Geocentric R.A. and N.P.D. of the Moon's center, the Horizontal Equatoreal Parallax, and the Geocentric Semidiameter, were interpolated for the noted time of observation with second differences from the Nautical Almanac; and (excepting in the instance of N°. 4) the assumed R.A. and N.P.D. of the stars were taken from the same work. The Moon's apparent R.A., N.P.D., and semidiameter, and the apparent distance of the Star from the Moon's center, were calculated by the following formulæ, differing in some degree from those employed in previous years.

Let  $\theta$  = the difference between the Moon's interpolated R.A. and the observed R.A. of zenith,

$\lambda'$  = the Moon's interpolated N.P.D.,

$l = 37^\circ.58'.20''.37$ , which is the angular distance of the Geocentric zenith from the Pole, supposing the angle of the vertex to be  $11'.12''$ .

$F$  = sine of interpolated Horizontal Equatoreal Parallax  $\times$  (N°. log = 9.9990916), (See p. xvii.)

$S$  = the interpolated semidiameter.

Then the apparent Hour Angle ( $\theta$ ) and apparent N.P.D. ( $\lambda$ ) of the Moon's center were calculated by the following formulæ used in the order in which they are here arranged.

$$G = F \sin l \operatorname{cosec} \lambda' \dots\dots\dots (1)$$

$$\sin(\theta - \theta') = G \sin \theta \dots\dots\dots (2)$$

$$\cos \phi = \cot \lambda' \tan l \cos \frac{\theta + \theta'}{2} \sec \frac{\theta - \theta'}{2} \dots\dots\dots (3)$$

$$H = 2 F \cos l \sin \theta \operatorname{cosec} \theta' \sin^2 \frac{\phi}{2} \dots\dots\dots (4)$$

$$\sin(\lambda - \lambda') = H \sin \lambda \dots\dots\dots (5).$$

The values of  $\theta - \theta'$  and  $\lambda - \lambda'$  were calculated from equations (2) and (5) by successive approximations to the third,  $\theta'$  and  $\lambda'$  being at first substituted for  $\theta$  and  $\lambda$  on the right-hand sides of the equations.

The apparent semidiameter ( $s$ ) is readily obtained after the previous calculations by the following formulæ:—

$$M = \sin \theta \operatorname{cosec} \theta'; \quad N = M \sin \lambda \operatorname{cosec} \lambda'; \quad s = N.S.$$

If  $\delta$  = the N.P.D. of the Star,  $D$  = the difference between  $\lambda$  and  $\delta$  in seconds,  $\Delta$  = the difference between the Star's R.A. and the apparent R.A. of the Moon in seconds of space, and if an angle ( $\chi$ ) be calculated from the equation  $\Delta \sqrt{\sin \lambda \sin \delta} = D \tan \chi$ , then the apparent distance of the Star from the Moon's center =  $D \sec \chi$  very nearly.

To take account of small errors in the quantities assumed in the foregoing calculations the following method was employed. The equations (1) and (2) were first differentiated, supposing all the quantities variable except  $l$ , which was considered to require no correction; and then the equations (3), (4), and (5) were differentiated on the same supposition. The two results being put under the forms,

$$\delta\theta = A\delta\theta' + B\delta\lambda' + \frac{C}{F}\delta F,$$

$$\delta\lambda = A'\delta\theta' + B'\delta\lambda' + \frac{C'}{F}\delta F,$$

it was found by a somewhat tedious process that  $A, B, C, A', B', C'$  admitted of being exactly expressed by the following simple formulæ.

$$\begin{aligned} A &= M \cos(\theta - \theta'), & A' &= M \sin \lambda \cos \lambda \sin(\theta - \theta'), \\ B &= -M \cot \lambda' \sin(\theta - \theta'), & B' &= M \sin^2 \lambda + M \sin \lambda \cos \lambda \cot \lambda' \cos(\theta - \theta'), \\ C &= M \sin(\theta - \theta'), & C' &= NF \sin \lambda \cos l - NF \cos \lambda \sin l \cos \theta. \end{aligned}$$

These values may be very rapidly computed with five-figure logarithms after the previous calculations, the only quantities that require a recurrence to the logarithmic tables being  $\cos \lambda$  and  $\cos \theta$ .

Now let the true R.A. of the zenith in arc be equal to the observed R.A. +  $15qt$ ,  $q$  being the factor which converts mean solar into sidereal time; and let the true longitude of the Cambridge Observatory be  $-23^s.54 + q\tau$ . Then the calculated Greenwich Mean Solar Time of observation must be increased by  $t + \tau$  seconds. Hence if  $\alpha$  and  $\beta$  be the increments of the Moon's R.A. and N.P.D. in one second of mean time, calculated for the time of observation, and  $x$  and  $y$  be the errors of the Moon's tabular R.A. and N.P.D., all in seconds of space, then

$$\begin{aligned} \text{the error of the calculated geocentric R.A.} &= \alpha(t + \tau) + x, \\ \text{the error of the calculated geocentric N.P.D. } (\delta\lambda') &= \beta(t + \tau) + y, \end{aligned}$$

and, supposing the Moon to be on the *East* side of the meridian,

$$\text{the error of the calculated geocentric hour angle } (\delta\theta') = -15qt + \alpha(t + \tau) + x.$$

Also if the true Horizontal Equatoreal Parallax be equal to the tabular multiplied by  $1 + 0.001m$ , the value of  $\delta F$  is  $0.001mF$  very nearly. Consequently,  $\delta R$  being the error of the Moon's calculated apparent R.A., which is equal to  $15qt + \delta\theta$ , we have,

$$\begin{aligned} \delta R &= \{-15q(A - 1) + A\alpha + B\beta\}t + (A\alpha + B\beta)\tau + Ax + By + 0.001Cm, \\ \delta\lambda &= (-15qA' + A'\alpha + B'\beta)t + (A'\alpha + B'\beta)\tau + A'x + B'y + 0.001C'm. \end{aligned}$$

The coefficients of  $t$ ,  $\tau$ ,  $x$ ,  $y$ , and  $m$  in the complete values of the Moon's apparent R.A. and N.P.D. were calculated from the above formulæ, excepting that  $q$  was inadvertently taken equal to unity instead of 1.0027, in consequence of which the coefficients of  $t$  may be inaccurate in the fourth place of decimals. I may here remark that the calculations are carried to the fourth place of decimals only for the purpose of ensuring accuracy to the third place in the final results.

By differentiating the equation  $s = NS$  we get,  $\delta s = N\delta S + S\delta N$ . The true geocentric semidiameter being supposed equal to the tabular multiplied by  $1 + 0.001n$ , the value of  $N\delta S$  is  $0.001sn$ . The only part of  $S\delta N$  at all worth considering is that which arises from the change of hour angle, which by differentiating will be found to be  $-sM \sin^2 \lambda \sin(\theta - \theta') \delta\theta'$ . Hence, as this quantity is always very small,

$$\delta s = 0.001s \times n + 15Cs \sin^2 \lambda \times t.$$

This formula is used for calculating the coefficients of  $n$  and  $t$  in the complete value of the Moon's apparent semidiameter.

All the foregoing expressions for the coefficients become applicable to the case in which the Moon is *West* of the meridian by taking  $\theta$  and  $\theta'$  negative. The effect of this will be to change the signs of  $B, C$ , and  $A'$ .

The variation of the distance ( $h$ ) of the star from the Moon's center, consequent upon the variations of the Moon's apparent R.A. and N.P.D. and the Star's assumed R.A. and N.P.D., may be obtained by varying all the quantities in the equation  $\cos h = \cos \lambda \cos \delta + \sin \lambda \sin \delta \cos \Delta$ . The errors of the Star's assumed R.A. and N.P.D. being  $e''$  and  $f''$ , it will be found that, very approximately,

$$\delta h = \left\{ \frac{\Delta^2}{4} \sin(\lambda + \delta) + \sin(\lambda - \delta) \right\} \frac{\delta\lambda}{\sin h} + \left\{ \frac{\Delta^2}{4} \sin(\lambda + \delta) - \sin(\lambda - \delta) \right\} \frac{f}{\sin h} + \sin \lambda \sin \delta \sin \Delta \frac{\delta\Delta}{\sin h},$$

in which  $\delta\Delta$  is equal to  $\delta R - e$  or  $e - \delta R$  according as the Moon's apparent R.A. is greater or less

than the Star's R.A. The coefficients of  $\delta\lambda$ ,  $f$ , and  $\delta\Delta$ , are readily obtained after the previous calculations. By equating the complete value of the apparent distance of the Star from the Moon's center to the complete value of the apparent semidiameter, the Final Equation is arrived at.

## OBSERVATIONS OF 1841.

The general explanation of the printed observations of 1841 being the same as for those of 1840, it will only be necessary here to advert to parts of the reductions or to circumstances in the observations, which are peculiar to the former year, and to give an account of the constants employed in the calculations, whenever they differ from those of 1840.

1. *Transits as observed, and Calculation of apparent Right Ascensions.* Pages [1]—[45].

A large number of the stars observed in 1841 were double or multiple stars, and the rule generally followed both in the Transit and Circle observations in selecting the star of the compound to be observed, is, always to take the brightest when decidedly brighter than the others, and of two or more, nearly equally bright, to take the preceding. In many instances of the observation of double stars the observer notes the one selected as *preceding, following, north preceding, north following, south preceding, south following*, by the letters *p, f, np, nf, sp, sf*, in their usual significations, the preceding star being that of less R.A. and the north star that of less N.P.D. This is done when the application of the foregoing rule is doubtful, or when the stars are very close, to shew that they are seen separate, or merely to facilitate the identifying of the stars. The above letters are attached to the names of the stars in the columns of objects observed, only in case the observer has noted the star taken at the time of observing.

The subjoined table was derived from an examination of the intervals between consecutive wires in all the transits of Polaris and  $\delta$  Ursæ Minoris taken in 1840, and is used throughout the year 1841. It differs little from the table used for the observations of 1840. See p. ii.

*Interval in time of each wire from the mean of all.*

For Equatorial Stars.	For $\delta$ Ursæ Minoris Declination = $89^{\circ}.35' + n''$ .	For Polaris Declination = $89^{\circ}.27' + n''$ .
A ..... - 40,321	- 11.16,84 - $n \times 0,055$	- 24.53,58 - $n \times 0,268$
B ..... - 26,859	- 7.30,76 - $n \times 0,037$	- 16.33,82 - $n \times 0,178$
C ..... - 13,560	- 3.49,22 - $n \times 0,019$	- 8.25,13 - $n \times 0,091$
D ..... + 0,040	+ 0,66	+ 1,46
E ..... + 13,472	+ 3.46,07 + $n \times 0,018$	+ 8.18,18 + $n \times 0,089$
F ..... + 26,943	+ 7.32,17 + $n \times 0,037$	+ 16.36,94 + $n \times 0,179$
G ..... + 40,384	+ 11.17,90 + $n \times 0,055$	+ 24.55,98 + $n \times 0,269$ .

On Sep. 10, 13 and 14, transits of Polaris were taken with the micrometer wire. This is done by first ascertaining the micrometer reading for coincidence with the wire *D*, and then noting the times of transit of the star over the micrometer-wire set at intervals of one, two, and three micrometer revolutions from *D* on each side, and over *D* itself. The mean of the seven times is the time of transit over *D*, and is corrected to the time of transit over the mean of the wires by adding or subtracting the interval 1',46 in the above Table, according as the illuminated end of the axis is West or East.

*Error of Collimation.* The value of collimation error determined by the reversion of the transit on Dec. 21 (1840) continued to be used till the next reversion in June of 1841, very few transits having been taken in this interval before the beginning of March. The following are the determinations of collimation error which I made in 1841.

June 15. 6<sup>h</sup>. The Transit was reversed. The cross was clear and steady before the reversion, and steady but not distinct after the reversion. The collimator's wire was considerably shaken by the wind.

*Illuminated End of Axis East.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	<sup>r.</sup> 24,180
..... 6 ..... bisecting South mark .....	23,147
..... 7 ..... bisecting North mark .....	23,595

*Illuminated End of Axis West.*

Mean of 8 readings, micrometer-wire bisecting North mark .....	<sup>r.</sup> 24,849
..... 8 ..... bisecting South mark .....	25,161
..... 6 ..... coincident with <i>D</i> .....	24,180
Reading for line of collimation by South mark.....	21,222
..... North mark.....	24,154
Reading for true line of collimation .....	24,188
Reading for coincidence with <i>D</i> .....	24,180

Hence it may be inferred, as in page iii, that the error of collimation of *D* is  $+0''.14$ . And since by the foregoing Table of intervals, the mean of all the wires (illumination West) is more eastward than *D* by  $0''.04$ , or  $0''.60$ , the concluded error of collimation is  $+0'', 14 - 0'', 60 - 0'', 18 = -0'', 64$ .

Oct. 6, 2<sup>h</sup>. Before the reversion on this day the cross was clear and steady till the Sun shone out, when it became unsteady. After reversion it became pretty steady, but the collimator's wire was obscure.

*Illuminated End of Axis West.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	<sup>r.</sup> 24,196
..... 6 ..... bisecting South mark .....	25,363
..... 6 ..... bisecting North mark .....	19,810

*Illuminated End of Axis East.*

Mean of 7 readings, micrometer-wire bisecting North mark .....	<sup>r.</sup> 28,505
..... 7 ..... bisecting South mark .....	23,211
..... 6 ..... coincident with <i>D</i> .....	24,194
Reading for line of collimation by South mark.....	24,287
..... North mark.....	24,158
Reading for true line of collimation .....	24,223
Reading for coincidence with <i>D</i> .....	24,195

Hence the error of collimation of the mean of the wires, inclusive of the correction for diurnal aberration, is  $-0'', 48 + 0'', 60 - 0'', 18 = -0'', 06$ .

Dec. 30, 2<sup>h</sup>. The cross was steady, but owing to mist, was seen indistinctly. The collimator's wire was also obscure.

*Illuminated End of Axis East.*

Mean of 6 readings, micrometer-wire coincident with <i>D</i> .....	<sup>r.</sup> 24,133
..... 6 ..... bisecting South mark .....	22,975
..... 8 ..... bisecting North mark .....	22,631

*Illuminated End of Axis West.*

Mean of 8 readings, micrometer-wire bisecting North mark .....	<sup>r.</sup> 25,699
..... 8 ..... bisecting South mark .....	25,261
..... 6 ..... coincident with <i>D</i> .....	24,135
Reading for line of collimation by South mark.....	24,118
..... North mark.....	24,165
Reading for true line of collimation .....	24,141
Reading for coincidence with <i>D</i> .....	24,134

Hence the error of collimation, concluded as before, is  $+0'', 12 - 0'', 60 - 0'', 18 = -0'', 66$ . This determination, which is not used, as a new set of wires was inserted at the beginning of 1842, suffices to shew that no great change of collimation error had occurred since the reversion of Oct. 6.

**Level Error.** Regular observations were not commenced in 1841 before Feb. 17, and the first levelling was taken on Feb. 22. The level error adopted for the observations made before that day is  $+12''.70$  for the reasons given in page vii. Between Feb. 22, 23<sup>h</sup>, and Feb. 23, 1<sup>h</sup>, after turning the screws for level-adjustment, I levelled the transit five times and reversed it between every two consecutive levellings, so that the illuminated end of the axis remained East as it was before. The several level errors uncorrected for inequality of the pivots were  $+0''.52$ ,  $-0''.71$ ,  $-0''.36$ ,  $-2''.85$ ,  $+1''.47$ , the last of which with the correction  $+0''.12$  applied is used on Feb. 25. As the two last results shewed that the irregularity which had appeared at previous reversion in 1840 still remained, I levelled again on Feb. 27. The result of a first levelling was  $+1''.46$ , after which the instrument was raised from the Y's and replaced without reversion, and the result of a second levelling was  $+2''.03$ . The effect of taking off the pressure of the *East* counterpoise and restoring it while the level remained on the pivots, was then tried, but no change of the bubble was perceptible. The same trial was not made of the *West* counterpoise as it was supposed to remain exactly as it was previous to 1840. At length on March 3 the effect of taking off the pressure of the *West* counterpoise was tried, and immediately the level error changed to  $-8''.80$ . It is clear, therefore, that previous to 1840 this counterpoise had not acted on the pivot, and that a change, of which no memorandum was taken, was made in the early part of that year. (see p. vi.) After this discovery the level-adjustment screws were turned to the reading they had before the alteration on Feb. 22, and the level error was found to be  $+1''.72$ , which, with the correction  $+0''.12$  applied, is used from March 4.

The level errors during the remainder of the year exhibit nothing worthy of remark, excepting that, as in former years, the elevation of the west end of the axis is at each of the reversion somewhat greater when the illuminated end of the axis is East than when it is West.

**Meridian Error.** By taking off the pressure of the west counterpoise on March 3 the change of meridian error was even greater than that of level error, which makes it probable that the irregular action of the counterpoise was owing to the want of proper adjustment of the position of the friction wheels. After March 3 the course of the meridian error to the end of the year was very regular, being least in the hottest and greatest in the coldest months.

**Clock Error.** The following are the assumed mean R.A. Jan. 1, 1841 of the fundamental stars and of Polaris and  $\delta$  Ursæ Minoris.

Star's Name.	Assumed Mean R.A. Jan. 1, 1841.	Excess over Naut. Alm. 1841.	Star's Name.	Assumed Mean R.A. Jan. 1, 1841.	Excess over Naut. Alm. 1841.
$\alpha$ Andromedæ...	0. 0. 10.88	+ 0.09	$\epsilon$ Bootis...	14. 38. 2.64	+ 0.02
Polaris .....	1. 2. 27.22	+ 0.04	$\alpha^*$ Libræ .....	14. 42. 5.61	0.00
$\alpha$ Arietis.....	1. 58. 13.43	+ 0.14	$\alpha$ Coronæ Bor	15. 27. 57.44	+ 0.05
$\alpha$ Ceti.....	2. 53. 58.54	+ 0.07	$\alpha$ Serpentis .....	15. 36. 26.14	+ 0.07
Aldebaran .....	4. 26. 48.22	+ 0.02	$\delta$ Ophiuchi.	16. 6. 1.29	+ 0.12
Rigel.....	5. 6. 54.01	+ 0.04	Antares.....	16. 19. 40.16	+ 0.01
$\beta$ Tauri.....	5. 16. 14.76	+ 0.02	$\alpha$ Herculis.....	17. 7. 23.99	- 0.04
$\alpha$ Orionis.....	5. 46. 33.93	- 0.02	$\alpha$ Ophiuchi	17. 27. 33.34	0.00
Castor.....	7. 24. 26.81	- 0.03	$\delta$ Ursæ Minoris.	18. 23. 35.92	- 1.31
Procyon.....	7. 30. 58.50	+ 0.01	$\alpha$ Aquilæ .....	19. 43. 1.54	+ 0.06
Pollux.....	7. 53. 34.71	- 0.03	$\beta$ Aquilæ .....	19. 47. 30.20	+ 0.04
$\alpha$ Hydræ .....	9. 19. 46.49	- 0.03	$\alpha^*$ Capricorni.	20. 9. 13.69	+ 0.06
Regulus.....	9. 59. 53.93	- 0.10	$\beta$ Aquarii .....	21. 23. 11.17	+ 0.09
$\beta$ Leonis.....	11. 40. 56.75	- 0.02	$\alpha$ Aquarii .....	21. 57. 37.03	+ 0.09
Spica.....	13. 16. 49.57	+ 0.06	$\alpha$ Pegasi.....	22. 56. 50.74	+ 0.01
Arcturus.....	14. 8. 24.72	+ 0.02			

The above assumed Mean Right Ascensions were in general obtained by adding the annual variations to the Mean Right Ascensions Jan. 1, 1840 concluded from the observations of that year and given in pages 91 and 92 of the present Volume. If the number of observations of the star in 1840 did not exceed fifteen, (which was the case with  $\alpha$  Orionis,  $\beta$  Leonis, Spica,  $\alpha^2$  Libræ,  $\alpha$  Coronæ Borealis,  $\alpha$  Serpentis,  $\delta$  Ophiuchi, and Antares,) the mean R.A. was derived from the observations of 1839 and 1840, by giving to the results of the two years weights proportional to the respective number of observations. The mean of the above excesses of the assumed R.A. above the R.A. of the Nautical Almanac, (excluding Polaris and  $\delta$  Ursæ Minoris) is,  $+0^s.028$ , which is the same as that in p. ix.

\* In the calculation of Clock errors and rates from observations made by different observers, attention is paid to the difference of their personal equations. It appears by the observations on May 23, and by comparing the observations of Aug. 26 and 27, that C and G observe very nearly alike. In two instances only, viz. on Oct. 6 and Nov. 15—16, observations by B and G are contained in the same group. In the first, the difference of clock error from personal equation, supposing the clock's losing rate to be  $1^s.18$ , is found to be  $0^s.26$ ; and in the other, supposing the losing rate to be  $0^s.80$ , it amounts to  $0^s.30$ . The mean of these,  $0^s.28$ , is considered to be the quantity by which G's and C's observations are in general *later* than B's. This quantity is applied as a correction in the above two instances, as stated in the notes, for the purpose of making the clock-errors of the two observers consistent. In every other case it is taken into account in determining the adopted rate of the clock from observations made by different observers, without altering the clock-errors.

The apparent R.A. of the fundamental stars, if fewer than three are contained in the same group, and the apparent R.A. of Polaris and  $\delta$  Ursæ Minoris, if the meridian error is not determined by consecutive transits of one of these stars, are not inserted in the columns of 'apparent R.A. from observation.'

In the *Catalogue of concluded Mean R.A.* (pages [57] and [58]) the letters *p* and *f* signify the *preceeding* or *following* of a double star. In affixing these letters, it is presumed, when the star taken has not been noted by the observer, and the components are far enough apart to be seen double in the Transit Telescope, that the selection has been made according to the rule in p. xxxv. Also if the components are too close to be seen double and one is known to be considerably brighter than the other from observations with the Northumberland Telescope, the transit observation is considered to apply to the brighter. In several instances of very close components of nearly equal magnitude, no letter is affixed, and the R.A. is supposed to apply to the middle point between them.

II. *Observations with the Mural Circle and Calculation of Geocentric North Polar Distances*, in pages [60]—[103].

Throughout 1841 the coincidences of the micrometer wire with the fixed wire were observed only at the middle vertical wire, and all other coincidences were determined in the manner stated in p. xii.

1841. July 1,  $21^h$ , I observed as follows for determining the value of one revolution of the eye-piece micrometer. As the cross on Grantchester tower was beautifully distinct and steady, the observations were made by bringing the fixed wire into contact with its extremities. See pages xii and xiii.



Micro- meter reading.	Pointer reading.	Microscope A	B	C	D	E	F	Correction for Runs.	Concluded Circle reading.	Difference.	Mean of consecutive differences.
- 15	267.35	2.38,8	37,7	36,4	39,5	40,1	39,3	- 2,7	267.37.38,18	"	"
+ 15	267.45	3.4,3	4,6	4,4	5,9	6,7	5,4	- 3,1	267.48.4,70	10.26,52	10.26,32
- 15	267.35	2.38,7	38,4	37,2	40,0	40,4	39,5	- 2,7	267.37.38,58	10.26,12	10.25,17
+ 15	267.45	3.3,0	2,5	2,9	3,6	5,3	2,6	- 3,1	267.48.2,80	10.24,22	10.25,21
- 15	267.35	2.37,5	36,4	35,2	37,5	38,8	36,9	- 2,7	267.37.36,60	10.26,20	10.25,90
+ 15	267.45	3.2,8	1,5	2,1	3,4	5,0	1,5	- 3,1	267.48.2,20	10.25,60	10.25,50
- 15	267.35	2.37,3	36,7	35,4	37,7	39,4	37,0	- 2,7	267.37.36,80	10.25,40	

The runs were taken at  $3\frac{1}{2}^h$ , when the temperature was  $62^{\circ}5$ , and the amount was found to be  $+5''1$ . The mean of the five values of  $30'$  is  $10'.25''62$ , whence the value of one revolution is  $20''854$ , which is adopted for the observations of 1841.

The following Table exhibits the results of the observations made in 1841 for the error of Runs. The temperature in degrees of Fahrenheit is added. (See pages xiv and xv.)

Day of Observation 1841.	Excess of micrometer-reading for positive division above micrometer-reading for negative division, for each microscope.						Sum of Ex- cesses.	Temperature.		Day of Observation 1841.	Excess of micrometer-reading for positive division above micrometer-reading for negative division, for each microscope.						Sum of Ex- cesses.	Temperature.
	A	B	C	D	E	F					A	B	C	D	E	F		
Mar. 10	+1,0	-0,9	+0,7	-0,6	+1,7	+1,9	+3,8	54		Sept. 10	+0,4	-0,3	+1,6	-1,0	+1,1	+0,8	+2,6	60
23	+1,1	-0,4	+1,0	-1,8	+1,3	+0,3	+1,5	54		20	+0,3	-0,5	+1,7	0,0	+1,7	+1,0	+4,2	63
	+1,0	-0,6	+1,2	-1,4	+1,0	+0,8	+2,0			23	+0,5	+0,2	+1,9	-0,9	+1,7	+1,7	+3,1	58
Apr. 19	+0,4	-0,6	+1,7	-0,1	+0,3	+1,5	+3,2	44		30	+0,2	-0,7	+0,5	-1,9	+1,7	+0,9	+0,7	50
28	+0,2	+1,0	+1,3	-1,0	+2,0	+1,3	+4,8	66		Oct. 1	+0,7	-0,2	+0,8	-1,0	+0,9	+0,4	+1,6	57
May 6	+0,7	-1,0	+1,3	-1,4	+0,5	+0,4	+0,5	49		5	+0,7	0,0	+0,8	-0,6	+1,0	+0,8	+2,7	52
21	+1,7	+0,8	+0,2	-0,7	+1,2	+0,9	+4,1	61		13	-0,2	-0,5	+0,5	+0,3	+1,3	+0,7	+2,1	52
29	+1,4	+0,6	+0,7	-0,1	+0,7	+1,1	+4,4	68		18	+1,0	-0,3	+1,3	-1,1	+0,7	+0,7	+2,3	46
June 12	+0,8	-1,9	+1,5	-2,1	+1,7	+1,5	+1,5	45		Nov. 8	0,0	-0,5	-1,5	-1,6	+2,0	+1,8	+0,2	47
21	+1,4	-0,6	+1,9	-0,5	+1,6	+1,2	+5,0	61		12	-0,2	-0,5	+1,4	-1,5	+1,1	+0,5	+0,8	44
July 1	+1,6	-0,9	+1,6	-0,1	+2,2	+0,7	+5,1	63		23	0,0	-0,8	0,0	-0,9	+0,7	+0,7	-0,3	40
16	+1,1	+0,9	+1,8	-0,1	+1,5	+0,4	+5,6	64		Dec. 3	+0,4	+0,2	+1,6	-0,9	+1,0	+0,5	+2,8	47
Sept. 6	-0,2	+0,7	+1,5	-0,8	+1,7	+0,4	+3,3	55		13	-0,1	-0,3	+1,3	-1,0			-0,1	44
										18	-0,1	-0,4	+0,8	-0,6			-0,3	32

In the *Catalogue of Concluded North Polar Distances* (pages [117]—[119]) the letters *np*, *nf*, *sp*, *sf*, the significations of which are given in page xxxv, have been attached or omitted on the same considerations as those already stated with reference to the *Catalogue of concluded R.A.*

*Mean excess of the adopted Zenith Point above the Zenith Points given by the Observations of each star. See p. xx.*

Star's Name.	Zen. Dist.	No. of Obs.	Means of M-Z.	Star's Name.	Zen. Dist.	No. of Obs.	Means of M-Z.
$\gamma$ Ursæ Majoris SP.	- 73 . 12	4	+ 0,01	$\delta$ Cygni.....	+ 7 . 28	2	+ 0,06
$\alpha$ Cassiopeiæ SP...	72 . 7	2	- 0,47	$\alpha$ Cygni.....	7 . 30	8	+ 0,73
$\nu$ Ursæ Majoris SP.	68 . 0	2	+ 1,23	$\lambda$ Ursæ Majoris....	8 . 31	1	+ 0,36
$\eta$ Cephei SP. ....	66 . 34	2	- 0,39	$\gamma$ Cygni.....	12 . 28	2	+ 0,85
$\alpha$ Ursæ Majoris SP.	65 . 11	9	+ 0,03	$\alpha$ Lyrae.....	13 . 35	13	+ 0,45
$\alpha$ Draconis SP.....	62 . 39	3	- 0,11	$\beta$ Lyrae.....	19 . 2	3	+ 0,03
A.S.C. 552 SP.....	61 . 43	2	+ 0,98	Castor.....	19 . 59	2	+ 0,75
$\lambda$ Draconis SP.....	57 . 35	3	- 0,31	$\eta$ Pegasi.....	22 . 49	4	+ 0,93
$\kappa$ Draconis SP.....	57 . 7	2	+ 0,07	$\beta$ Tauri.....	23 . 45	3	+ 0,33
$\beta$ Ursæ Minoris SP.	52 . 59	2	- 0,18	$\alpha$ Andromedæ.....	24 . 0	7	+ 0,49
$\zeta$ Ursæ Minoris SP.	49 . 30	1	- 0,05	$\epsilon$ Bootis.....	24 . 28	2	+ 0,56
$\epsilon$ Ursæ Minoris SP.	41 . 12	1	- 0,76	$\alpha$ Coronæ Borealis.	24 . 57	3	+ 0,62
Polaris SP.....	39 . 19	13	- 0,59	$\alpha$ Arietis.....	29 . 30	6	+ 0,42
Polaris.....	36 . 15	13	- 0,50	$\delta$ Leonis.....	30 . 49	1	+ 0,60
$\delta$ Ursæ Minoris ....	34 . 23	5	- 0,36	Arcturus.....	32 . 12	7	+ 0,23
$\epsilon$ Ursæ Minoris.....	30 . 4	8	- 0,63	$\eta$ Bootis.....	33 . 1	3	+ 0,04
$\zeta$ Ursæ Minoris.....	26 . 4	2	- 1,89	Aldebaran.....	36 . 2	4	+ 0,59
$\gamma$ Cephei.....	24 . 32	7	- 0,63	$\beta$ Leonis.....	36 . 45	3	+ 1,13
$\beta$ Ursæ Minoris....	22 . 35	4	- 1,60	$\alpha$ Delphini.....	36 . 52	2	+ 0,38
$\kappa$ Draconis.....	18 . 27	1	- 0,76	$\alpha$ Herculis.....	37 . 38	6	- 0,02
$\lambda$ Draconis.....	18 . 0	1	- 1,28	$\alpha$ Pegasi.....	37 . 52	4	+ 0,17
$\beta$ Cephei.....	17 . 39	10	- 0,12	$\gamma$ Pegasi.....	37 . 55	4	- 0,32
$\epsilon$ Cephei.....	13 . 9	6	- 0,37	Regulus.....	39 . 28	2	- 0,22
$\alpha$ Draconis.....	12 . 55	4	- 0,99	$\alpha$ Ophiuchi.....	39 . 32	3	+ 0,19
$\alpha$ Ursæ Majoris....	10 . 24	10	- 0,47	$\gamma$ Aquilæ.....	41 . 59	2	- 0,45
$\alpha$ Cephei.....	9 . 42	17	- 0,12	$\zeta$ Pegasi.....	42 . 13	7	- 0,18
$\eta$ Draconis.....	9 . 10	2	- 0,04	$\beta$ Cancri.....	42 . 33	1	- 0,02
$\eta$ Cephei.....	9 . 1	1	- 0,21	$\epsilon$ Pegasi.....	43 . 4	3	+ 0,09
$\nu$ Ursæ Majoris. ...	7 . 34	1	- 0,24	$\beta$ Aquilæ.....	46 . 12	3	+ 0,15
$m$ Ursæ Majoris....	5 . 41	1	- 0,52	Procyon.....	46 . 35	1	+ 0,08
$\alpha$ Cassiopeiæ.....	3 . 27	9	- 0,09	$\alpha$ Ceti.....	48 . 45	2	- 0,07
$\gamma$ Ursæ Majoris....	- 2 . 23	5	- 0,06	$\epsilon$ Ophiuchi.....	56 . 31	1	+ 1,18
$\eta$ Ursæ Majoris....	+ 2 . 6	6	+ 0,62	$\beta$ Aquarii.....	58 . 29	5	+ 0,67
$\alpha$ Persei.....	2 . 56	4	- 0,15	Spica.....	62 . 32	2	+ 0,54
$\kappa$ Ursæ Majoris....	4 . 26	1	+ 0,11	$\nu$ Hydrie et Crat...	+ 67 . 35	2	+ 1,63
Capella.....	+ 6 . 23	5	- 0,06				

*Corrections for Discordance of Zenith Points, added algebraically to N.P.D. by direct Observations in 1841. See page xxi.*

N.P.D.	Correction.	N.P.D.	Correction.	N.P.D.	Correction.
- 40	+ 0,09	+ 15	- 0,61	+ 70	+ 0,36
35	+ 0,09	20	- 0,53	75	+ 0,09
30	+ 0,09	25	- 0,44	80	- 0,07
25	+ 0,08	30	- 0,28	85	+ 0,04
20	+ 0,04	35	- 0,10	90	+ 0,27
15	- 0,08	40	+ 0,12	95	+ 0,44
10	- 0,29	45	+ 0,36	100	+ 0,53
- 5	- 0,47	50	+ 0,50	105	+ 0,57
0	- 0,57	55	+ 0,58	110	+ 0,59
+ 5	- 0,61	60	+ 0,59	115	+ 0,59
+ 10	- 0,63	+ 65	+ 0,52	+ 120	+ 0,59

The corrections for reflexion observations are the same with contrary signs.



Respecting the concluded *Right Ascensions and North Polar Distances of the Planets observed in 1841*, (page [122]) it is only necessary to state that the Greenwich Mean Solar Time of the observation of Pallas in N.P.D. on Sept. 11, is deduced from the Tabular R.A. diminished by 6<sup>h</sup>.00.

Among the *Comparisons of Clocks and Chronometers* in page [124] are included the comparisons of Hardy with Molyneux used in the reduction of the Circle observations of Zenith Distances which follow in pages [126] and [127].

In the reduction of the Circle observations of the *Zenith Distances of a star very near the Pole*, in pages [126] and [127], the apparent Zenith Distance and correction for Refraction are calculated in the same manner as in other Circle observations. When the star was bisected by the micrometer-wire, the coincidence reading adopted for reducing to the fixed wire corresponds to the place of bisection of the star in the field, which, as it was not noted by the observer, was readily inferred from the sidereal time of observation and the star's approximate R.A. and N.P.D. by means of a graphical construction of its diurnal path. The 'concluded Zenith Distance' is merely the apparent Zenith Distance with the correction for Refraction applied. The 'sidereal time of observation' was calculated from the time by Molyneux on the opposite page, by means of the comparisons in p. [124]. These observations may either be used for determining the latitude of the observatory, or, as they give the apparent relative positions of the pole of the heavens and the star at a given time, they may, by comparison with similar observations at different epochs, furnish equations for correcting the constants of aberration and nutation. The smallness of the star renders it proper for the latter purpose, as in a limited period it may be presumed to be unaffected by proper motion; but on the other hand its extreme faintness in the Telescope makes the observations in some degree uncertain.

#### EQUATOREAL OBSERVATIONS.

THE adjustments of the Northumberland and Five-feet Equatoreals were not altered in 1841.

The *Observations of Pallas* with the Northumberland Equatoreal (pages [130] and [131]) require no explanation after the description in p. xxvii of similar observations taken in 1840. It is only necessary to state the following particulars.

1841. March 27, the micrometer-wire B was disarranged in consequence of the micrometer receiving a blow, and on June 10 new wires were inserted. Sept. 15. 7<sup>h</sup>, I observed the coincidence reading of B at the fixed wire in the middle of the field, and perceiving afterwards that the two wires were not exactly parallel, I observed (Oct. 4, 4<sup>h</sup>) the coincidences at the opposite edges of the field with a power of 215. The reading of A was 10<sup>h</sup>.000; the observations were made by bringing B into alternate contact with the sides of A\*.

#### Coincidence readings of B.

At rough edge.	At fixed wire.	At opposite edge.
9.989	9.986	9.991
9.996	9.992	9.996
9.998	9.993	9.982
9.999	9.993	9.996
9.986	9.994	9.983
9.942	9.992	9.924
9.998		9.989
9.944		9.926
Means..... 9.999	9.994	9.996

\* The mean measure of the thickness of the wires by these observations is 0.028, or 0".48. They are therefore thicker than the last by 0".17.

When the micrometer-head of A is upwards, the Telescope looking southward, the comb is on the *East* side of the field. In the observations of N.P.D. (Sept. 18) the star was bisected at a distance from the comb equal to one-third the diameter of the field: the coincidence reading of B was consequently 9',965, and the difference of N.P.D. is measured by the sum of the micrometer readings diminished by 19',965. In the observations of R.A. the star was bisected near the edge opposite the comb, the coincidence reading of B was 9',957, and the measure of difference of R.A. is the sum of the micrometer readings diminished by 19',957.

In the observations of N.P.D. Sept. 18, the reading of the position circle was 45' in defect; and as by the observations of R.A. the difference of R.A. of the star and planet measured along the parallel of declination was 401", the error in the measure of difference of N.P.D. is  $401'' \times \sin 45'$ , or 5'',25. Also as the graduation of the position circle proceeds in the direction of the motion of the hands of a watch, it follows from the relative position of the star and planet in the field which is known from the observations, that the error was in *excess*. Hence the measures of difference of N.P.D. are diminished by the above quantity.

The following are the mean R.A. and N.P.D. Jan 1, 1841 of the stars of reference, as determined by meridian observations in 1841.

Name of Star.	Mean R.A. Jan. 1, 1841.			Mean N.P.D. Jan. 1, 1841.		
	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>°</i>	<i>'</i>	<i>''</i>
Λ.S.C. 2697 .....	22	26	27,87	90	13	12,91
η Aquarii.....	22	27	11,13	90	56	5,79

The observations of *Differences of N.P.D. of Mars and adjacent stars* in pages [134] and [139], require no explanation beyond what is given in the notes and what may be gathered from the foregoing account of the other equatoreal observations. They were made in the same manner as the like observations of 1839, excepting that for the reasons stated in the notes, opposite limbs were not simultaneously bisected with the Northumberland Telescope, and consequently the observations with this instrument furnish no measure of the Planet's apparent diameter. The horizontal equatoreal parallax and apparent semi-diameter, and the assumed N.P.D. of the stars, were taken without alteration from the Nautical Almanac: so that the final results are affected with any errors in these data. The coincidence readings of the micrometer wires were adopted from the following considerations.

In measuring the distance of the components of a double star by the double-wire micrometer of the Northumberland Telescope, it is the practice to take the measures with one wire on each side of the other remaining fixed. Consequently, the number of measures being the same on both sides, the mean of the micrometer readings of the wire that is moved, is the reading of its coincidence with the fixed wire. The coincidence readings of A found in this manner by observations on April 19, 23, 29, and May 1, B being at 10,000, were respectively 10,033, 10,038, 10,023, and 10,024. The mean of these, viz. 10,030, which was the value found by direct observations of the coincidence on July 11, (1840), is adopted for the observations of Mars.

After the observations of coincidences of the micrometer wires of the Five-feet Equatoreal on Oct. 24, 1839, as stated in p. xxxv of the Introduction to the Volume for that year, no other were taken till August of 1842. By the former, the coincidence reading of the micrometer-wire L with the fixed wire at the middle vertical wire was 9,917, by the latter, 9,877. The mean of these is adopted for the few observations of Mars on March 14.

The *Miscellaneous Observations* with the Northumberland Equatoreal in pages [142]—[144], are sufficiently explained by the remarks that accompany them. I propose to add here in detail the observations by which the values of the micrometer revolutions of the divided-glass eye-pieces were determined. (See p. xlii of the Introduction of Vol. XII.)

1841. March 10. 12<sup>h</sup>, Transits of β Ursæ Minoris were taken for finding the value of the micrometer revolution of the divided-glass eye-piece N°. 10, power 420. The images of the star, having been first separated a convenient interval by turning the micrometer-head, were bisected by a fine wire adjustable for this purpose. The direction of the wire, and consequently that of the separation of the images, was then made to coincide with the Equatoreal direction by means of the Position Circle, and after placing the wire by guess at right angles to this direction, transits of the two images were taken as follows. Chronometer X was used, the half seconds being counted instead of whole seconds.

Transit of first image.	Transit of second image.	Difference of transits.	Difference in seconds.
28,1	61,4	33,3	16,65
26,3	59,2	32,9	16,45
24,1	57,0	32,9	16,45
19,8	53,1	33,3	16,65
15,5	48,2	32,7	16,35
9,8	42,3	32,5	16,25
13,7	46,3	32,6	16,30
21,1	53,8	32,7	16,35
19,2	51,8	32,6	16,30
16,7	50,1	33,4	16,70

The three first and three last observations were taken by C, the remainder by G. The mean result for the difference of transits is 16',445. At the same time the micrometer reading for coincidence of the images was found by five trials closely agreeing to be 10',008. The reading at separation was 15',021. Hence as the N.P.D. of  $\beta$  Ursæ Minoris was  $15^{\circ}.12'.9''$ , we have  $5',013 = 15 \times 16,445 \times \sin 15^{\circ}.12'.9''$  in seconds of space. Hence  $1' = 12'',904$ .

On the same day, at  $13\frac{1}{2}^h$ , transits of  $\beta$  Ursæ Minoris were taken in the same manner for finding the value of the micrometer revolution of the divided-glass eye-piece N<sup>o</sup>. 9, power 380.

Transit of first image.	Transit of second image.	Difference of transits.	Difference in seconds.
22,2	70,3	48,1	24,05
19,7	68,8	49,1	24,55
20,7	69,5	48,8	24,40
10,8	59,9	49,1	24,55
19,5	68,0	48,5	24,25
23,2	71,8	48,6	24,30
13,0	62,5	49,5	24,75
6,8	56,4	49,6	24,80
8,4	57,0	48,6	24,30
8,1	56,9	48,8	24,40
5,9	55,2	49,3	24,65

The first six were taken by C, the remainder by G. The mean of the differences in seconds is 24',455. By eight trials the reading for coincidence of the images was 10',039. The separation reading was 1',333. Hence as before  $5',706 = 15 \times 24,455 \times \sin 15^{\circ}.12'.9''$ ; which gives,  $1' = 16'',858$ .

1841. Oct. 6.  $12^h$ . I made observations for determining the value of the micrometer revolution of the divided-glass eye-piece N<sup>o</sup>. 8, power 280. The illumination of the field of this eye-piece being too feeble to shew the wire, transits of the images of the *Moon's Limb* were taken in the following manner. The images were separated in the equatorial direction by means of a selected point of the Moon's surface, and the wire was placed by guess at right angles to the line joining the images of the point. Motion was then given to the Instrument about its Polar axis by the clock, and transits of the images of the Limb were taken with Chronometer X as follows:—

Transit of first image.	Transit of second image.	Difference of transits.
0 . 57 . 20	0 . 59 . 38,5	2 . 18,5
1 . 0 . 48,5	1 . 2 . 59,0	2 . 10,5
1 . 3 . 33,0	1 . 5 . 48,0	2 . 15,0

The mean of the intervals between the transits is  $2^m.14'.7$ . By comparisons before and after the observations the readings of the fixed index of the Hour Circle at the times  $0^h.52^m.56^s$  and  $1^h.8^m.48^s$  by X were  $12^h.53^m.30^s$  and  $13^h.9^m.40^s$ . Hence the gain of the clock was  $18^s$  in  $15^m.52^s$ , and according to the same rate in  $2^m.14'.7$  it was  $2'.55$ . By this quantity the first image moved *eastward* relatively to the wire by reason of the clock's rate. Again, the mean of the times of observation was found by comparison of X with Hardy to be very nearly  $12^h$  Greenwich Mean Time, when the Moon's geocentric hourly variation of R.A. was  $2^m.35^s$ . Hence the *apparent* change of R.A. in  $2^m.14'.7$  was found by calculation to be  $5'.49$ , by which quantity the first image moved *eastward* relatively to the wire on account of the Moon's proper motion. Consequently the sidereal interval between the images was  $2'.55 + 5'.49$  or  $8'.04$ . The Moon's apparent declination was  $25^{\circ}.41'$ , the micrometer reading for separation was  $5',907$ , and the mean of the micrometer readings in page [143], increased by  $5'$ , gives for the coincidence reading,  $9',492$ .

Hence  $6''.035 = 15 \times 8.04 \times \cos 25^\circ.41'$  in seconds of space, and  $1'' = 18''.002$ , which differs a little from the adopted value, being in fact more correctly calculated. With this value the diameter of Venus by the observations is  $25''.775$ , and the excess of the tabular diameter is  $-1''.04$ .

The calculations in page [145] of the Final Equations given by the observations in pages [143] and [144] of the distances of Venus and of  $\gamma$  Sagittarii from the Moon's Limb, were performed by means of the formulæ in pages xxxiii and xxxiv. The same formulæ were used in calculating the Final Equations from the Occultations of fixed stars and of Venus by the Moon (pages [148]--[158]). The only peculiarity in these calculations was the determining for the occultation of Venus on Sept. 11 the distance of the center of Venus from the Moon's Limb at the instants of the first contact and first appearance of the *gibbous* Limb. This was done as follows.

The boundary of illumination of the gibbous Limb being supposed to be an ellipse, and the semi-axis major to be represented by unity, the semi-axis minor was found from the data in the Nautical Almanac for 1841, p. 544, to be 0.428. The angle which the common tangent to the limbs of Venus and the Moon at the point of contact, makes with the axis major of the ellipse, is the same as the angle which a great circle through the centers of the Sun and Venus, makes with a great circle through the centers of the Moon and Venus. Calling this angle  $a$ , the distance of the center of Venus from the Moon's Limb is, Semidiameter of Venus  $\times \sqrt{\sin^2 a + (0.428)^2 \cos^2 a}$ . The angle  $a$  was calculated from the apparent places of the Sun and Venus at the given time of observation and the Moon's apparent place known from the previous part of the calculation of the occultation. For the time of first contact its value was found to be  $15^\circ.33'$ , and for the time of first appearance,  $34^\circ.45'$ . Hence, the tabular semidiameter being  $7''.60$ , the computed distances are respectively  $3''.74$  and  $5''.09$ .

The *Hourly Meteorological Observations at the Autumnal Equinox and Winter Solstice*, in pages [159] and [160], were made in conformity with the notice circulated by Sir J. Herschel in 1835. Those from  $10^h$  to  $15^h$  were taken by myself; the rest by Mr Glaisher. The observations were carried beyond  $36^h$  with the hope of embracing in them a maximum or minimum height of the barometer, which was effected in the case of those taken at the Winter Solstice. The barometer readings have been corrected for an error of 0.1 inch in defect.

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All the Observations in this Volume were originally recorded in pencil writing in small memorandum books, which are carefully preserved for future reference.

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### *Additions to the Introduction.*

I. The corrections for Runs in the observations of N.P.D. of Galle's Second Comet with the Five-foot Equatoreal (pages 224, 226, and 228), having been applied with a wrong sign, the concluded N.P.D. and errors of interpolated N.P.D. have been corrected on that account; and the results of *all* the observations of N.P.D., with the Greenwich Mean Solar Times of observation, are collected in the following Table.

Ref. N <sup>o</sup> .	Greenwich Mean Solar Time of Observation.	Concluded N.P.D. of Comet.	Error of Interpolated N.P.D.	Ref. N <sup>o</sup> .	Greenwich Mean Solar Time of Observation.	Concluded N.P.D. of Comet.	Error of Interpolated N.P.D.
1	Feb. 25. <sup>h</sup> 7. <sup>m</sup> 25. <sup>s</sup> 38.9	51. 36. 48.25	- 0.31	33	Mar. 4. <sup>h</sup> 7. <sup>m</sup> 48. <sup>s</sup> 4.9	58. 6. 38.02	+ 15.38
3	7. 59. 25.4	51. 38. 1.48	+ 0.90	35	7. 50. 10.6	58. 6. 38.80	+ 18.48
5	8. 24. 38.3	51. 38. 51.31	+ 6.64	37	Mar. 6. 8. 32. 3.8	59. 35. 14.96	- 1.92
7	Feb. 29. 7. 57. 10.4	55. 0. 50.06	+ 11.05	39	8. 34. 44.4	59. 35. 14.57	+ 3.20
9	8. 19. 44.3	55. 1. 44.92	+ 1.89	41	10. 11. 0.0	59. 38. 15.83	- 7.67
11	8. 48. 9.7	55. 2. 35.09	+ 9.29	44	Mar. 7. 9. 25. 37.2	60. 18. 36.00	+ 12.15
13	8. 55. 21.6	55. 3. 4.03	- 5.08	46	9. 39. 35.3	60. 18. 58.49	+ 13.83
15	8. 59. 19.0	55. 3. 3.31	+ 3.66	49	Mar. 19. 7. 53. 7.7	67. 34. 59.65	+ 19.08
17	Mar. 2. 9. 46. 1.1	56. 39. 28.40	+ 12.40	51	7. 58. 59.3	67. 34. 49.02	+ 37.58
19	9. 49. 59.4	56. 39. 28.87	+ 19.62	53	8. 3. 31.2	67. 35. 10.61	+ 22.06
21	9. 54. 18.7	56. 39. 47.52	+ 9.33	55	8. 7. 10.8	67. 35. 7.89	+ 29.69
23	Mar. 3. 8. 21. 58.1	57. 22. 26.10	+ 31.52	57	8. 10. 45.4	67. 35. 20.65	+ 21.73
25	8. 28. 45.0	57. 22. 44.35	+ 26.12	58	Mar. 24. 7. 46. 20.6	70. 8. 12.34	+ 26.20
27	8. 34. 20.1	57. 23. 9.69	+ 11.37	60	7. 55. 17.1	70. 8. 24.03	+ 25.41
29	8. 40. 55.0	57. 23. 21.47	+ 12.05	62	7. 59. 43.4	70. 8. 23.48	+ 31.38
31	Mar. 4. 7. 45. 46.3	58. 6. 38.89	+ 10.22	64	8. 6. 1.3	70. 8. 31.27	+ 31.27

The reference numbers are the same as those in pages 224, 226, and 228.  
N<sup>o</sup>. 41 and 58 are each the mean of two results.

II. In the reduction of the observations of R.A. of Galle's First Comet contained in the Volume for 1839, instead of correcting the mean of the times of transit of the star to the mean of the times of transit of the comet, each mean should have been corrected to the time of transit across the middle wire in the manner stated at the bottom of page xxix of the foregoing Introduction. As it happened that the Comet was throughout the observations near the equator, and the stars of comparison differed little from it in N.P.D., the correction required on this account is in every instance very small. In N<sup>os</sup>. 10 and 41 it amounts to two-tenths of a second of time, in a few others to about one-tenth of a second, and in the majority of cases it is quite inappreciable. It has not therefore been thought worth while to exhibit the results obtained by applying these corrections.

III. In the Volumes for 1836, 1838, and 1839, several stars to be met with in standard Catalogues have been inadvertently designated by their approximate R.A. or N.P.D. The following is a list of such stars with their proper designations.

In the Volume for 1836, the Star of R.A.	$\overset{\wedge}{21}$	$\overset{m}{1}$	$\overset{s}{42}$	and N.P.D.	$\overset{\wedge}{60}$	$\overset{s}{26}$	is Piazzi XXI. 1.
1838, . . . . .	23	58	4	26	42	10	Cassiopeia = Piazzi XXIII. 275.
1838, . . . . .	23	56	37	26	7		Piazzi XXIII. 269.
1839, . . . . .	17	12	30	61	0		Piazzi XVII. 64.
1839, . . . . .	18	38	13	91	7	5	Aquila = Piazzi XVIII. 176.
1839, . . . . .	19	14	9	94	1		Piazzi XIX. 85.

The three first occur also in the Volume for 1839. The second, third, and fourth are respectively the stars (L), (K), and (G), used in the observations of Eocke's Comet in 1838; and the fifth and sixth are the stars (V) and (VII) used in the observations of Galle's First Comet.



# ERRATA AND CORRIGENDA.

## IN THE VOLUME FOR 1836.

Page xlv. line 17. For 0,9333607 read 0,9333658.

The  $\star$  N.P.D.  $69^{\circ}.26'$  in p. (66) and in the Catalogues, pages (97) and (99) is Piazzi XXI. 1.

## IN THE VOLUME FOR 1837.

p. xiv. last line. For 4,1383328 read 4,1383338.

p. liv. line 9. For 0,9333607 read 0,9333658.

p. lxxvii. line 6. For  $d \sqrt{\sin \lambda \sin \Delta} = h \tan \chi$  read  $h \sqrt{\sin \lambda \sin \Delta} = d \tan \chi$ ; and in line 7, for  $h \sec \chi$  read  $d \sec \chi$ . The calculations are not affected by this error.

p. lxxvii. line 20. For  $\sin h$  read  $\cos h$ .

## IN THE VOLUME FOR 1838.

p. xlix. line 7. For 0,9333607 read 0,9333658.

p. xc. In the last two lines,  $h$  should be put for  $d$ , and  $d$  for  $h$ .

p. xcii. line 1. For  $\sin h$  read  $\cos h$ .

p. 26. Nov. 9. For  $\star$  Mag. 8 or 9 N.P.D.  $26^{\circ}.7'$ , read  $\star$  Mag. 9 or 10 N.P.D.  $26^{\circ}.12'$ . The minutes set down in the observation of this star, (which is the preceding of a very faint coarsely double star) were incorrectly increased by 1<sup>m</sup>, it being confounded with  $\star$  (L) observed with Encke's Comet. Hence in pages 113 and 115, for  $26^{\circ}.7'$  read  $26^{\circ}.12'$  and for 23.56, 51, 23 read 23.53, 51, 23.

The star R.A.  $23^{\circ}.56^m.7^s$  and N.P.D.  $26^{\circ}.42'$ , which occurs in pages 94, 113, 115, 208, 214, (11) and (13), and is called  $\star$  (K) in pages (33), (36), (59) and (67), is 10 Cassiopeia, and should be so named.

p. 208. Nov. 13, and p. 214. Dec. 8 and 11, for  $\star$  R.A.  $23^{\circ}.56^m.54^s$  read  $\star$  R.A.  $23^{\circ}.56^m.37^s$ , and in pages (11) and (13), for  $\star$  R.A.  $23^{\circ}.56^m.31^s$  read  $\star$  R.A.  $23^{\circ}.56^m.37^s$ . This star is Piazzi XXIII. 209, and should be so named.

The  $\star$  (G) in pages (31), (54) and (67) is Piazzi XVII. 64, and should be so named.

The  $\star$  (L) in pages (36), (59) and (67) is Piazzi XXIII. 209. Its mean R.A. Jan. 1, 1838 derived from transit observations in 1840 is  $23^{\circ}.56^m.37^s.27$ , which should be substituted for  $23^{\circ}.56^m.51^s.23$  in page (67). Hence also in page (70) N<sup>o</sup>. 67, the seconds of the assumed R.A. of star should be 40,70, the concluded R.A. of the comet  $23^{\circ}.51^m.46^s.72$  and the Tabular Error  $+0^m.17^s.86$ .

## IN THE VOLUME FOR 1839.

p. xis. line 14. For 0,9333607 read 0,9333658.

The  $\star$  (V) in pages xi, 232, 236, and 244, is  $\delta$  Aquile; and the  $\star$  (VII) in pages xi and 232, is Piazzi XIX. 85. These names should be given them.

The  $\star$  R.A.  $17^{\circ}.12^m.30^s$  and N.P.D.  $61^{\circ}.0'$ , which occurs in pages 38, 42, 93, 97, 126, 132, 134, 187, and 192, is Piazzi XV. 64, and should be so named.

The  $\star$  R.A.  $21^{\circ}.1^m.42^s$  and N.P.D.  $69^{\circ}.26'$ , which occurs in pages 52, 54, 58, 94, 97, 140, 142, 146, 189, and 192, should be named Piazzi XXI. 1.

p. 34. Aug. 10. For  $\star$  N.P.D.  $76^{\circ}.45'$  read  $\star$  N.P.D.  $76^{\circ}.52'$ . The same correction is required in the Catalogues, pages 95 and 97.

The  $\star$  R.A.  $23^{\circ}.56^m.7^s$  and N.P.D.  $26^{\circ}.42'$ , which occurs in pages 68, 70, 93, 97, 134, 190, and 192, should be named 10 Cassiopeia.

pp. 93 and 97. The star  $\delta$  Ophiuchi is the preceding of a double star. This should have been mentioned.

pp. 96 and 97. The annual variations (excepting those taken from the Nautical Almanac) are all either 0,001 or 0,002 too small, in consequence of an error in one of the constants employed in calculating them.

p. 134. Sept. 19 and 21. For  $\star$  R.A.  $23^{\circ}.56^m.54^s$  read  $23^{\circ}.56^m.40^s$ . The same correction is required in pages 190 and 192. This star is Piazzi XXIII. 209, and should have been so named in the places cited.

pp. 234, 236, and 238. In the reduction of the observations of R.A. of Galle's First Comet, the mean of the times of transit should have been reduced to the middle wire. See the *Additions* to the Introduction of the present Volume.

## IN THE VOLUME FOR 1840 AND 1841.

p. xlii. line 10. For 0,9333607 read 0,9333658.

p. 91, second column of names of stars. For  $\star$  Scorpii read  $\delta$  Scorpii.

p. 92. The magnitude of the  $\star$  R.A.  $17^{\circ}.46^m.10^s$  should be 8. There is a star of Mag. 9, 10, of less N.P.D. by about  $2'$  and very nearly the same R.A.

pp. 91 and 92. The annual variations are affected by the same error as those of 1839. See above.

p. 94. Jan. 3. The correction to Bard wire in the observation of  $\lambda$  Draconis 8P. R. should be  $+23,46$  instead of  $23,13$ ; and in consequence the seconds of concluded circle reading, Zenith Point, apparent Zenith Distance, and apparent N.P.D. should be altered to 6,58, 53, 18, 4, 36, and 29,97.

p. 176. July 9. The correction to Bard wire in the observation of  $\omega^1$  Ursæ Majoris 8P. R. should be  $-20,81$  instead of  $-20,66$ . The seconds of N.P.D. p. (127) will consequently be 11,46 instead of 11,41.

p. 190.  $\omega^1$  Ursæ Majoris 8P. R. July 9, for  $16^{\circ}.24'$  read  $16^{\circ}.49'$ .

p. 181.  $\lambda$  Draconis 8P. R. Jan. 3, for  $9^{\circ}.91'$  read  $10^{\circ}.24'$ .

p. 189. In the mean N.P.D. of  $\omega^1$  Ursæ Majoris 8P. R., for 13,69 read 13,76; and in the mean N.P.D. of  $\lambda$  Draconis 8P. R., for 16,82 read 16,93.

pp. 234, 236, and 238, below the columns. The corrections for Rurs of  $A$  and  $B$  should be  $-4^{\circ}.7'$  and  $-6^{\circ}.2'$  instead of  $+4^{\circ}.7'$  and  $+6^{\circ}.2'$ . The corrections are all applied with a wrong sign. See the *Additions* to the Introduction.

p. (8). March 23, 27 and April 3. The  $\star$  N.P.D.  $81^{\circ}.4'$  is  $\delta$  A.C. 1372.

p. (31) Oct. 2, the seconds of apparent R.A. of Polaris 8P. R. should be 13,26 instead of 14,79.

pp. (31) and (32) Oct. 4. The seconds of transits corrected in G's observations become 2,18 and 23,67 when the correction  $-0,28$  is applied for difference of personal equation of B and G.

p. (66) The seconds of the apparent R.A. and mean R.A. of Polaris Oct. 2, should be 13,26 and 26,49.

p. (143) The value of the micrometer revolution of eye-piece N<sup>o</sup>. 8 is more correctly  $18^{\circ}.002$ . (See Introduction page xliii.) Hence the mean of the measured diameter is  $25^{\circ}.773$  instead of  $25^{\circ}.874$ , and the excess of the tabular value  $-1^{\circ}.04$  instead of  $-0^{\circ}.89$ .





TRANSITS AS OBSERVED,  
AND  
CALCULATION  
OF THE  
APPARENT RIGHT ASCENSIONS.

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1840.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Jan. 1	(a) Aldebaran.....	20,8	35,1	49,1	3,2	17,3	31,1	4. 26. 45,1		B.
	α Orionis.....	8,5	.....	35,9	49,3	3,2	16,1	5. 46. 30,1	- 4,53	
	δ Ursæ Minoris SP....	11.28,4	15.14,2	18.54,2	22.47,7	26.32,5	30.19,8	6. 34. 6,7		
	(b) Venus 2 L.....	.....	.....	52,6	6,7	20,9	34,6	15. 33. 48,5	- 14,05	B.
	α Herculis.....	54,5	8,5	22,1	36,2	50,3	3,9	17. 7. 17,9		B.
	Mercury 2 L.....	29,2	43,1	57,4	12,2	26,5	41,0	17. 13. 55,2		B.
	α Ophiuchi.....	4,1	17,8	31,8	45,2	59,2	12,9	17. 27. 26,8		B.
	δ Ursæ Minoris.....	11.26,8	15.12,4	18.58,6	22.44,2	26.34,2	30.16,4	18. 34. 2,7		B.
	⊙ 1 L.....	14,9	29,4	44,1	58,8	13,7	28,0	18. 47. 42,9		B.
	⊙ 2 L.....	37,1	51,7	6,9	21,1	36,0	50,4	18. 50. 5,1		B.
Jan. 2	(c) α Aquilæ.....	32,7	46,0	59,6	13,2	27,1	40,3	19. 42. 54,0		B.
	α Arietis.....	42,1	57,1	11,5	26,2	41,0	55,2	1. 58. 10,3		B.
	Aldebaran.....	19,6	33,8	47,9	2,0	16,2	29,7	4. 26. 43,6		B.
	Rigel.....	27,1	40,8	54,4	8,0	21,9	35,2	5. 6. 48,9		B.
	β Tauri.....	42,1	57,3	12,8	28,2	43,8	58,4	5. 16. 14,1		B.
	δ Ursæ Minoris SP....	11.26,2	15.13,3	18.55,5	22.45,6	26.31,2	30.17,6	6. 34. 4,4		B.
	χ <sup>2</sup> Ceti.....	17,2	31,5	44,9	58,3	12,1	25,9	1. 41. 39,4		B.
	α Arietis..... (Temp. 48°)	40,8	55,3	10,1	24,3	39,2	53,9	1. 58. 8,3		B.
Jan. 3	A.S.C. 268.....	.....	7,0	20,1	33,7	47,2	1,1	2. 27. 14,2	- 6,77	B.
	A.S.C. 279.....	24,1	37,8	51,1	4,9	18,6	31,9	2. 31. 45,1		B.
	A.S.C. 340.....	46,4	7,1	27,7	48,2	9,0	29,0	2. 57. 49,9		B.
	14 Eridani.....	24,8	38,1	51,9	5,8	19,8	33,1	3. 8. 46,9		B.
	(d) α Herculis..... (Temp. 35°)	48,2	1,9	16,0	29,8	44,1	57,8	17. 6. ....	+ 6,94	B.
Jan. 5	δ Ursæ Minoris.....	11.21,7	15. 6,8	18.53,4	22.39,3	26.29,6	30.10,4	18. 33. 57,7		B.
	(c) ⊙ 1 L.....	.....	.....	15,1	29,4	44,7	58,9	19. 5. 13,9	- 14,62	B.
Jan. 6	⊙ 2 L.....	7,8	22,1	37,0	51,2	6,3	20,9	19. 7. 35,1		B.
	α Aquilæ.....	26,1	39,8	53,1	6,8	20,8	34,1	19. 42. 47,7		B.
	A.S.C. 91.....	.....	.....	44.17,4	47. 4,8	49.57,3	52.41,4	0. 55. 29,8	- 2. 47,86	B.
	A.S.C. 164.....	.....	.....	.....	18,8	34,0	48,5	1. 22. 3,6	- 22,55	B.
	χ <sup>2</sup> Ceti..... (cloudy)	.....	.....	39,8	53,2	7,1	20,8	1. 41. 34,2	- 13,74	B.
	α Arietis..... (Temp. 32°)	35,4	50,2	5,1	19,3	34,1	48,3	1. 58. 3,1		B.
	(f) A.S.C. 279.....	19,1	32,4	46,1	59,8	13,2	26,9	2. 31. 40,1		B.
	α Ceti.....	24,9	38,2	52,0	5,2	19,1	32,0	2. 53. 45,7		B.
	Aldebaran.....	13,1	26,7	41,2	55,0	9,1	23,0	4. 26. 36,9		B.
	Venus 2 L.....	53,2	7,4	21,6	35,8	50,3	4,1	15. 56. 17,8		B.
	α Herculis.....	46,4	0,1	14,1	28,0	42,0	55,8	17. 7. 10,0		B.
	Mercury 2 L.....	19,6	34,0	48,3	3,1	18,1	32,2	17. 29. 46,4		B.
	δ Ursæ Minoris.....	11.19,8	15. 6,7	18.51,5	22.38,5	26.28,3	30. 9,6	18. 33. 56,4		B.
	⊙ 1 L.....	7,0	21,8	36,3	50,8	5,9	19,9	19. 9. 34,5		B.
	⊙ 2 L.....	29,0	43,3	58,0	12,7	27,3	41,7	19. 11. 56,3		B.
	α Aquilæ.....	24,4	38,1	51,4	5,0	18,9	32,1	19. 42. 45,8		B.
Jan. 7	(g) ⊙ 1 L.....	50,9	5,2	19,5	34,0	48,7	3,0	21. 22. 17,4		B.
	A.S.C. 91.....	.....	41.27,4	44.15,8	47. 4,5	49.53,7	52.39,3	0. 55. 27,8	- 1. 23,91	B.
	χ <sup>2</sup> Ceti..... (hazy)	.....	.....	37,9	51,4	5,9	19,1	1. 41. 32,7	- 13,74	B.
	α Arietis..... (Temp. 31°)	34,1	48,8	3,2	17,8	32,2	46,9	1. 58. 1,4		B.
	A.S.C. 268..... (mist)	.....	.....	13,3	26,9	40,5	54,0	2. 27. 7,3	- 13,54	B.
	α Arietis.....	46,4	0,9	15,2	29,1	43,8	57,7	2. 33. 12,2		B.
	A.S.C. 340.....	40,1	0,3	20,6	41,1	2,2	22,4	2. 57. 43,1		B.
	m <sup>2</sup> Eridani.....	10,9	25,7	40,3	55,1	10,1	24,7	3. 40. 39,2		B.
	Aldebaran.....	11,1	25,0	39,0	53,2	7,7	21,2	4. 26. 35,1		B.
	Rigel.....	18,6	32,3	46,0	59,3	13,1	26,3	5. 6. 40,1		B.
	A.S.C. 641.....	36,2	51,0	6,1	20,8	35,9	50,6	5. 15. 5,2		B.
	δ Ursæ Minoris SP....	.....	15. 2,7	18.41,0	22.33,4	26.18,7	30. 3,6	6. 33. 50,8	- 1. 52,88	B.
	(h) Venus 2 L.....	27,4	41,5	55,6	10,3	24,5	38,3	16. 0. 52,9		B.
	α Herculis.....	45,0	58,8	13,0	26,7	41,0	54,5	17. 7. 8,2		B.
	α Ophiuchi..... (cloudy)	.....	.....	.....	36,0	49,9	3,5	17. 27. 17,1	- 20,70	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.  
Transit levelled Dec. 31, 2<sup>h</sup>, and Jan. 6, 2<sup>h</sup>.

(a) Clouded, then blazing.

(b) Very unsteady.

(c) Loud wind.

(d) Considerable change of Temperature between Jan. 3 and Jan. 5.

(e) Hurried: intervals not good.

(f) The counting being found 1<sup>st</sup> in excess, the observation is altered accordingly.

(g) Very faint.

(h) Haze and unsteadiness.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. (for Errors of Level and Collimation).	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at (P).	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
4. 26. 3.10		+ 3.42	3.41	46.39	42.98	1.45	42.59	4. 26. 46.27	- 1.56	Aldebaran.
5. 45. 49.32			49.63	32.44	42.81			5. 46. 32.57	- 1.74	$\alpha$ Orionis.
6. 22. 46.21	43.69		46.21	29.26	43.05			18. 23. 29.19	+ 26.08	$\delta$ Ursæ Min. SP.
15. 33. 6.61			6.95			1.62	42.56	15. 33. 50.36		Venus 2 L.
17. 6. 36.20			36.51	20.34	43.83			17. 7. 20.22	+ 0.90	$\alpha$ Herculis.
17. 13. 12.08			12.43					17. 13. 56.15		Mercury 2 L.
17. 26. 45.40			45.72	29.64	43.92			17. 27. 29.46	+ 0.94	$\alpha$ Ophiuchi.
18. 22. 45.04	47.69		45.53	29.23	43.70			18. 23. 29.33	+ 26.11	$\delta$ Ursæ Minoris.
18. 46. 58.83										
18. 49. 21.18			10.36					18. 48. 54.19		$\odot$ 's center.
19. 42. 13.27			13.58	57.65	44.07			19. 42. 57.47	+ 0.98	$\alpha$ Aquilæ.
1. 57. 26.20			26.50	10.79	44.29		44.18	1. 58. 10.81	- 0.72	$\alpha$ Arietis.
4. 26. 1.82			2.13	46.39	44.26			4. 26. 46.61	- 1.56	Aldebaran.
5. 6. 8.05			8.37	52.79	44.42			5. 6. 52.89	- 1.65	Rigel.
5. 15. 28.10			28.40	12.79	44.39			5. 16. 12.94	- 1.86	$\beta$ Tauri.
6. 22. 44.83	42.31		44.83	29.21	44.38			18. 23. 29.44	+ 26.13	$\delta$ Ursæ Min. SP.
1. 40. 58.47			58.80			1.61	45.79	1. 41. 44.70	- 0.83	$\chi^2$ Ceti.
1. 57. 24.56			24.86	10.78	45.92			1. 58. 10.78	- 0.71	$\alpha$ Arietis.
2. 26. 33.78			34.09					2. 27. 20.04	- 0.96	A.S.C. 268.
2. 31. 4.79			5.10					2. 31. 51.06	- 0.99	A.S.C. 279.
2. 56. 48.17			48.49					2. 57. 34.48	- 1.22	A.S.C. 340.
3. 8. 5.77			6.10					3. 8. 52.10	- 1.24	14 Eridani.
17. 6. 29.91		+ 6.83	30.32	20.43	50.11	1.75	48.92	17. 7. 20.49	+ 0.81	$\alpha$ Herculis.
18. 22. 39.84	41.67		37.35	29.05	51.70			18. 23. 27.61	+ 26.29	$\delta$ Ursæ Minoris.
19. 4. 29.78										
19. 6. 51.48			41.20					19. 6. 31.51		$\odot$ 's center.
19. 42. 6.92			7.35	57.68	50.33			19. 42. 57.71	+ 0.95	$\alpha$ Aquilæ.
0. 47. 6.28			4.59				50.67	0. 47. 55.32	+ 6.39	A.S.C. 91.
1. 21. 13.67			19.26					1. 22. 10.03	- 0.82	A.S.C. 164.
1. 40. 53.28			53.79					1. 41. 44.58	- 0.79	$\chi^2$ Ceti.
1. 57. 19.36			19.74	10.74	51.00			1. 58. 10.55	- 0.67	$\alpha$ Arietis.
2. 30. 59.65			0.09					2. 31. 50.94	- 0.95	A.S.C. 279.
2. 53. 5.30			5.74	56.53	50.79			2. 53. 56.62	- 1.08	$\alpha$ Ceti.
4. 25. 55.00			55.40	46.38	50.98			4. 26. 46.39	- 1.55	Aldebaran.
15. 55. 35.74			36.29			1.60	50.88	15. 56. 28.23		Venus 2 L.
17. 6. 28.06			28.47	20.45	51.98			17. 7. 20.49	+ 0.79	$\alpha$ Herculis.
17. 29. 3.10			3.67					17. 29. 55.72		Mercury 2 L.
18. 22. 38.69	40.52		36.20	29.04	52.84			18. 23. 28.31	+ 26.30	$\delta$ Ursæ Minoris.
19. 8. 50.88										
19. 11. 12.61			2.32					19. 10. 54.48		$\odot$ 's center.
19. 42. 5.10			5.53	57.69	52.16			19. 42. 57.72	+ 0.94	$\alpha$ Aquilæ.
21. 21. 34.10			34.65					21. 22. 26.93		$\gamma$ 1 L.
0. 47. 4.14			2.45				52.48	0. 47. 54.98	+ 6.65	A.S.C. 91.
1. 40. 51.06			52.17					1. 41. 44.76	0.78	$\chi^2$ Ceti.
1. 57. 17.77			18.15	10.73	52.58			1. 58. 10.76	- 0.66	$\alpha$ Arietis.
2. 26. 26.86			27.29					2. 27. 19.93	0.92	A.S.C. 268.
2. 32. 29.33			29.72					2. 33. 22.37	- 0.91	$\alpha$ Arietis.
2. 56. 41.40			41.62					2. 57. 34.29	- 1.16	A.S.C. 340.
3. 39. 55.14			55.72					3. 40. 48.45	- 1.47	$m^2$ Eridani.
4. 25. 53.18			53.56	46.38	52.80			4. 26. 46.35	- 1.55	Aldebaran.
5. 5. 59.39			59.88	52.78	52.90			5. 6. 52.70	- 1.64	Rigel.
5. 14. 20.83			21.41					5. 15. 14.24	- 1.75	A.S.C. 644.
6. 22. 52.15	30.38		55.42	29.05	53.63			18. 23. 28.33	+ 26.29	$\delta$ Ursæ Min. SP.
16. 0. 10.07			10.62			1.50	52.36	16. 1. 3.98		Venus 2 L.
17. 6. 26.74			27.15	20.47	53.32			17. 7. 20.58	+ 0.77	$\alpha$ Herculis.
17. 26. 35.92			36.34	29.77	53.43			17. 27. 29.79	+ 0.81	$\alpha$ Ophiuchi.

Error of Collimation =  $+1''.10$  (by the reversion on Jan. 10).

Level Error =  $+1''.72$  From Jan. 5 =  $+0''.73$ .

Meridian Error from Jan. 1, by  $\delta$  Ursæ Minoris SP,  $\delta$  Ursæ Minoris, and  $\delta$  Ursæ Minoris SP Jan. 1 and 2. That from Jan. 5, by  $\delta$  Ursæ Minoris Jan. 6 and  $\delta$  Ursæ Minoris SP Jan. 7, allowing  $+0''.79$  for loss of clock and  $-0''.01$  for change of  $R$ . The observation of  $\delta$  Ursæ Minoris on Jan. 5 shows that a change of Meridian error occurred between that day and Jan. 2.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Jan. 8	(a) $\odot$ 2 L.....	50,0	4,4	19,2	33,5	48,1	2,7	19. 16. 17,4		B.
	$\beta$ Tauri.....	32,0	47,4	3,1	18,2	33,5	48,9	5. 16. 4,2		B.
	$\alpha$ Orionis.....	57,0	10,7	24,1	37,7	51,2	5,1	5. 46. 18,4		B.
	(b) $\delta$ Ursæ Minoris SP...	11.14,8	14.59,4	18.41,3	22.30,8	...	29.58,2	6.....	+ 3. 1,00	B.
Jan. 10	$\alpha$ Pegasi.....	8,0	21,8	35,2	49,7	3,1	17,0	22. 56. 31,1		B.
	$\kappa^1$ Piscium.....	5,7	18,8	32,1	45,6	58,9	12,8	23. 18. 26,2		B.
	$\eta$ Piscium.....	4,8	18,1	31,7	45,2	58,9	12,0	23. 39. 25,4		B.
	(c) $\gamma$ 1 L.....	34,2	48,0	1,9	15,9	29,2	43,0	23. 50. 57,0		B.
	$\alpha$ Andromedæ.....	...	39,1	54,2	10,1	25,1	40,2	23. 59. 55,9	- 7,62	B.
	$d$ Piscium.....	43,8	57,2	10,7	24,1	38,0	51,2	0. 12. 5,1		B.
	Aldebaran.....	6,1	20,1	34,1	48,0	1,9	16,3	4. 26. 30,2		B.
	Rigel.....	13,9	27,3	40,8	54,3	8,8	22,2	5. 6. 35,7		B.
	$\beta$ Tauri.....	28,9	44,0	59,2	14,8	30,1	45,1	5. 16. 0,7		B.
	$\delta$ Ursæ Minoris SP...	11. 9,3	14.55,7	18.42,4	22.27,8	26.17,5	29.57,8	6. 33. 45,3		B.
	Venus 2 L.....	19,6	34,1	48,3	2,5	16,7	31,1	16. 14. 45,2		B.
	Antares.....	51,8	6,7	21,4	36,9	52,0	6,7	16. 19. 21,8		B.
	$\alpha$ Herculis.....	39,9	53,8	7,2	21,3	35,1	49,0	17. 7. 3,0		B.
	$\alpha$ Ophiuchi.....	49,1	3,1	16,5	30,8	44,3	58,1	17. 27. 11,9		B.
	(d) Mercury 2 L.....	6,1	20,5	...	49,7	4,5	18,9	17. 47. 33,2	- 2,47	B.
	$\delta$ Ursæ Minoris.....	11.14,6	15. 1,7	18.42,1	22.32,5	26.18,3	30. 4,6	18. 33. 50,8		B.
Jan. 11	$\odot$ 1 L.....	28,1	42,8	56,9	11,9	26,2	40,8	19. 26. 55,4		B.
	$\odot$ 2 L.....	49,4	4,0	18,1	33,0	47,4	2,0	19. 29. 16,8		B.
	$\alpha$ Aquilæ.....	17,4	31,1	44,3	58,2	11,9	25,2	19. 42. 39,0		B.
	(e) $\alpha$ Andromedæ.....	22,0	37,1	52,1	8,2	23,1	38,2	23. 59. 53,5		B.
	$d$ Piscium.....	41,9	55,2	9,2	22,5	36,2	49,8	0. 12. 3,2		B.
	(f) $\gamma$ 1 L.....	39,8	53,2	7,0	21,0	35,1	49,0	0. 41. 3,0		B.
	$\epsilon$ Piscium.....	58,9	12,4	25,4	39,2	52,9	6,3	0. 54. 20,1		B.
	$\eta$ Piscium.....	14,9	29,2	42,8	56,9	10,7	24,1	1. 22. 38,0		B.
	$\alpha$ Arietis..... (Temp. 38°)	27,1	41,9	56,2	11,1	25,7	40,1	1. 57. 54,5		B.
	Aldebaran.....	4,2	18,1	32,0	46,0	0,1	14,3	4. 26. 28,1		B.
	Rigel..... (flaring)	12,1	25,7	39,1	53,0	6,3	20,1	5. 6. 33,3		B.
	$\delta$ Ursæ Minoris SP....	11. 7,7	14.52,2	18.39,8	22.25,5	26.14,4	29.56,7	6. 33. 43,6		B.
Jan. 12	$\epsilon$ Piscium.....	56,7	10,1	23,3	37,1	50,9	4,3	0. 54. 18,1		B.
	$\eta$ Piscium..... (bare)	12,7	26,8	40,7	54,6	8,4	22,1	1. 22. 36,0		B.
	$\gamma$ 1 L.....	18,1	32,2	46,2	0,9	15,2	29,1	1. 33. 43,3		B.
	$\beta$ Arietis.....	5,1	18,9	33,1	47,4	2,1	16,1	1. 45. 30,8		B.
	$\alpha$ Arietis.....	25,1	40,0	54,0	8,9	23,3	37,9	1. 57. 52,8		B.
	(g) Venus 2 L.....	41,4	55,9	9,8	24,8	38,9	52,9	16. 24. 7,5		B.
	$\alpha$ Herculis.....	36,0	49,7	3,4	17,4	31,3	45,2	17. 6. 59,0		B.
	$\alpha$ Ophiuchi.....	45,2	59,1	12,7	26,7	40,8	54,3	17. 27. 7,9		B.
	(h) Mercury 2 L.....	9,1	23,4	37,2	52,2	7,5	21,9	17. 57. 36,4		B.
Jan. 13	$\delta$ Ursæ Minoris.....	11.10,7	14.56,8	18.37,5	22.28,3	26.15,3	30. 0,2	18. 33. 46,3		B.
	$\odot$ 1 L.....	4,9	19,2	33,4	48,1	2,9	17,3	19. 35. 31,7		B.
	$\odot$ 2 L.....	25,4	40,0	54,3	9,1	23,3	38,1	19. 37. 52,9		B.
	$\alpha$ Aquilæ.....	13,7	27,2	40,8	54,3	8,1	21,4	19. 42. 35,1		B.
	$\beta$ Arietis.....	3,0	16,8	31,2	45,5	0,1	14,2	1. 45. 28,4		B.
	(i) $\alpha$ Arietis..... (Temp. 35°)	23,2	38,1	52,0	7,2	21,3	36,1	1. 57. 50,8		B.
	$\psi$ Arietis.....	17,2	31,1	45,0	59,3	13,6	27,4	2. 21. 41,3		B.
	$\gamma$ 1 L.....	54,0	8,6	23,1	38,0	52,7	7,3	2. 30. 22,0		B.
	$\alpha$ Ceti.....	12,1	25,9	39,2	52,6	6,1	19,3	2. 53. 33,0		B.
	$\delta$ Arietis.....	44,0	58,1	12,1	26,5	41,2	55,0	3. 2. 9,5		B.
	$g$ Arietis..... (bare)	5,3	20,0	34,9	49,8	4,4	19,1	3. 14. 33,7		B.
	Aldebaran.....	0,2	14,1	28,0	42,2	56,0	10,1	4. 26. 24,1		B.
	Rigel.....	8,1	21,4	35,0	49,0	2,7	16,1	5. 6. 29,3		B.
	$\delta$ Ursæ Minoris SP....	11. 3,3	14.49,7	18.36,4	22.21,8	26.12,5	29.54,4	6. 33. 30,6		B.
Jan. 15	(k) $\odot$ 1 L.....	38,4	53,0	7,4	22,0	36,7	51,0	19. 45. 4,8		B.
	$\odot$ 2 L..... (Temp. 47°)	...	13,9	28,1	42,5	57,0	11,6	19. 47. 26,1	- 7,23	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCHA.

From Jan. 10..... EAST. .... ABCDEFG.

The Transit was reversed Jan. 10, 0<sup>h</sup> and levelled just before and after the reversion.Jan. 13, 2<sup>h</sup>. The Transit was levelled. Jan. 13, 22<sup>h</sup>. The clock was put forward 1<sup>m</sup>.

(a) Great motion. (b) Wires III, IV, VI, doubtful on account of clouds. (c) Waving. (d) Very faint and ill-defined. (e) Flaring: wire IV marked doubtful. (f) Very unsteady. (g) Very bad definition. (h) Badly defined: wire III doubtful. (i) Flaring. (k) Very cloudy.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the (Observation.	Correc- tion to mean R.A. Jan. 1, 1849.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
19. 15. 33.61 5. 15. 18.19 5. 45. 37.75 6. 22. 29.90		+ 6.83	34.19 18.55 38.20 32.95	12.81 32.47 29.07	54.26 54.27 56.12	1.50	52.36 53.86	19. 16. 27.76 5. 16. 12.74 5. 46. 32.42 18. 23. 27.21	- 1.88 - 1.77 + 26.27	☉ 2 L. β Tauri. α Orionis. δ Ursæ Min. SP.
22. 55. 49.42 23. 17. 45.73 23. 38. 45.16 23. 50. 15.60 23. 59. 9.81 0. 11. 24.30 4. 25. 48.10 5. 5. 54.71 5. 15. 14.69 6. 22. 27.97 16. 14. 2.50 16. 18. 36.76 17. 6. 21.32 17. 26. 30.34 17. 46. 49.68 18. 22. 32.09		+ 4.46	49.63 45.96 45.59 15.83 9.99 24.32 48.30 54.94 14.87 30.92 2.74 37.01 21.33 30.76 49.92 29.79	47.33 57.70 57.55 58.07 57.84 57.95 58.26 35.95 20.54 29.83 59.42	57.70 57.55 58.07 57.84 57.95 58.26 59.42	1.93 1.96	55.67 57.60 57.59	22. 56. 47.14 23. 18. 43.50 23. 39. 42.96 23. 51. 13.43 0. 0. 7.59 0. 12. 22.14 4. 26. 46.25 5. 6. 52.95 5. 16. 12.89 18. 23. 29.03 16. 15. 1.65 16. 19. 35.93 17. 7. 20.52 17. 27. 29.77 17. 47. 48.96 18. 23. 28.88	+ 0.43 + 0.15 0.00 + 0.27 - 0.07 - 1.54 - 1.64 - 1.89 + 26.16 + 0.59 + 0.70 + 0.75 + 26.13	α Pegasi. α Piscium. α Piscium. δ 1 L. α Andromedæ. δ Piscium. Aldebaran. Rigel. β Tauri. δ Ursæ Min. SP. Venus 2 L. Antares. α Herculis. α Ophiuchi. Mercury 2 L. δ Ursæ Minoris.
19. 26. 11.73 19. 28. 32.95 19. 41. 58.16 23. 59. 7.75 0. 11. 22.57 0. 40. 21.15 0. 53. 39.32 1. 21. 56.66 1. 57. 10.94 4. 25. 46.12 5. 5. 52.80 6. 22. 25.70			22.58 58.38 7.93 22.79 21.37 39.54 56.87 11.13 46.32 53.03 28.65	57.72 7.51 59.58 10.69 46.37 52.78 29.25	59.34 59.58 59.56 60.05 59.75 60.60			19. 28. 21.76 19. 42. 57.58 0. 0. 7.48 0. 12. 22.35 0. 41. 20.97 0. 54. 39.16 1. 22. 56.53 1. 58. 10.84 4. 26. 46.23 5. 6. 53.00 18. 23. 28.72	+ 0.91 + 0.28 - 0.06 - 0.31 - 0.43 - 0.62 - 1.64 + 26.09	☉'s center. α Aquilæ. α Andromedæ. δ Piscium. δ 1 L. α Piscium. η Piscium. α Arietis. Aldebaran. Rigel. δ Ursæ Min. SP.
0. 53. 37.22 1. 21. 54.47 1. 33. 0.71 1. 44. 47.65 1. 57. 8.86 16. 23. 24.46 17. 6. 17.43 17. 26. 26.67 17. 36. 52.53 18. 22. 27.87		+ 3.80	37.40 54.65 0.89 47.82 9.03 24.66 17.61 26.86 52.73 25.92	10.68 61.65 62.98 63.01 63.43	61.65 62.98 63.01 63.43	1.97 2.00	61.49 61.50	0. 54. 38.96 1. 22. 56.25 1. 34. 2.51 1. 45. 49.45 1. 58. 10.68 16. 24. 27.53 17. 7. 20.55 17. 27. 29.81 17. 37. 55.72 18. 23. 28.95	- 0.31 - 0.42 - 0.53 - 0.61 + 0.65 + 0.71 + 25.99	α Piscium. η Piscium. δ 1 L. β Arietis. α Arietis. Venus 2 L. α Herculis. α Ophiuchi. Mercury 2 L. δ Ursæ Minoris.
19. 34. 48.22 19. 37. 9.02 19. 41. 54.37 1. 44. 45.60 1. 57. 6.96 2. 20. 59.28 2. 29. 37.96 2. 52. 52.60 3. 1. 26.63 3. 13. 49.60 4. 25. 42.10 5. 5. 48.80 6. 22. 27.53			58.82 54.56 45.77 7.13 59.46 38.14 52.79 26.81 49.76 42.28 48.99 25.05	57.74 10.66 56.47 63.68 64.08 63.78 64.34	63.18 63.53 63.68 64.08 63.78 64.34		63.50	19. 37. 1.95 19. 42. 57.70 1. 45. 49.42 1. 58. 10.79 2. 22. 3.15 2. 30. 41.83 2. 53. 56.53 3. 2. 30.56 3. 14. 53.53 4. 26. 46.15 5. 6. 52.91 18. 23. 29.08	+ 0.89 - 0.52 - 0.59 - 0.78 - 1.02 - 1.04 - 1.13 - 1.53 - 1.63 + 25.95	☉'s center. α Aquilæ. β Arietis. α Arietis. α Arietis. δ 1 L. α Ceti. δ Arietis. γ Arietis. Aldebaran Rigel. δ Ursæ Min. SP.
19. 44. 21.90 19. 46. 42.64		+ 3.96	32.48			1.70	5.44	19. 45. 39.31		☉'s center.

Error of Collimation = + 17.10. From Jan. 10 = - 1".46.

Level Error = + 0".73. From Jan. 10 = + 2".24 (by the levelling after reversion). From Jan. 12 = + 2".17.

Meridian Error from Jan. 10 by δ Ursæ Minoris SP, δ Ursæ Minoris, and δ Ursæ Minoris SP Jan. 10 and 11.

Meridian Error from Jan. 12 by δ Ursæ Minoris Jan. 12 and δ Ursæ Minoris SP Jan. 13, allowing + 0".92 for loss of clock and - 0".04 for change of A.

Meridian Error from Jan. 15, by δ Ursæ Minoris Jan. 15 and δ Ursæ Minoris SP Jan. 17, allowing + 2".65 for loss of clock and - 0".14 for change of A.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	A. m. s.		
Jan. 15	Venus 2 L.....	54,3	8,6	22,6	37,4	51,6	5,9	16.39.20,4		B.
	$\alpha$ Herculis.....	30,6	44,2	57,9	12,0	26,0	39,8	17.7.54,0		B.
	$\alpha$ Ophiuchi.....	39,8	53,7	7,1	21,0	34,8	49,0	17.28.2,9		B.
	(a) Mercury 2 L.....	17,7	32,4	46,5	2,2	16,4	31,2	18.14.45,7		B.
	(b) $\delta$ Ursæ Minoris.....	.....	15.49,3	19.31,6	23.22,2	27.6,4	30.53,7	18.34.39,8	- 1.52,85	B.
Jan. 16	$\odot$ 1 L. ....	54,9	9,4	23,6	38,5	52,9	7,2	19.49.21,9		B.
	$\odot$ 2 L. .... (Temp 42°)	15,1	29,9	44,0	58,9	13,1	27,4	19.51.42,0		B.
	(c) $\beta$ Tauri.....	17,7	33,1	47,9	4,1	19,0	34,2	5.16.49,6		B.
Jan. 17	$\alpha$ Ceti.....	5,0	18,4	32,0	45,3	59,0	12,3	2.54.26,1		B.
	$m^{\circ}$ Eridani.....	53,1	8,1	22,2	37,2	52,0	7,0	3.41.21,8		B.
	Aldebaran.....	53,4	7,4	21,1	35,2	49,2	3,2	4.27.17,4		B.
	Rigel..... (flaming)	1,1	14,4	27,9	42,0	55,3	9,1	5.7.22,4		B.
	A.S.C. 641.....	19,0	33,2	48,0	3,0	17,9	32,7	5.15.47,7		B.
	$\kappa$ Aurigæ.....	16,0	31,0	46,2	2,0	17,4	33,1	6.5.48,3		B.
	(d) * N.P.D. 69° 7'.....	47,0	2,0	15,7	29,9	44,6	58,9	6.20.13,3		B.
	$\delta$ Ursæ Minoris SP....	11.54,6	15.43,4	.....	23.13,8	27.4,3	30.46,4	6. ....	+ 1.30,17	B.
	$\epsilon$ Geminorum.....	11,9	26,4	41,1	56,2	11,1	26,0	6.34.40,9		B.
	(e) $\gamma$ 1 L.....	15,7	31,4	46,7	2,4	18,0	33,5	6.56.49,1		B.
	$\delta$ Geminorum.....	40,9	55,9	9,9	25,0	39,4	53,9	7.11.9,0		B.
	Castor.....	26,7	42,3	58,0	14,2	30,1	46,0	7.25.2,0		B.
	Procyon.....	5,6	19,1	32,3	46,2	0,1	13,4	7.31.27,0		B.
	Pollux.....	36,2	51,9	6,5	22,1	37,4	52,9	7.36.8,1		B.
Jan. 19	(f) Castor.....	23,0	39,1	54,3	11,0	26,4	42,3	7.24.58,1		B.
	(f) Procyon.....	2,2	15,5	29,2	42,3	56,1	9,9	7.31.23,3		B.
	Pollux.....	32,9	48,2	3,2	18,8	34,1	49,2	7.36.4,9		B.
	$\theta$ Cancri.....	32,5	46,9	0,9	15,1	29,1	43,7	8.22.58,0		B.
	$\delta$ Cancri.....	39,8	54,2	8,1	22,1	36,5	50,7	8.36.5,1		B.
	(g) $\gamma$ 2 L.....	46,7	1,2	15,3	30,5	45,0	59,4	9.4.14,2		B.
	$\alpha$ Hydræ.....	49,8	3,1	16,7	30,3	44,1	57,3	9.20.11,2		B.
	$\lambda$ Leonis.....	38,1	52,8	7,1	22,1	36,7	51,3	9.23.6,1		B.
	$\mu$ Leonis.....	42,1	56,1	9,4	23,1	37,1	50,7	9.33.4,2		B.
	$\delta$ Ursæ Minoris.....	.....	.....	.....	23.16,3	27.2,6	30.49,3	18.34.33,8	- 5.39,49	B.
Jan. 20	$\odot$ 1 L.....	.....	.....	21,0	35,9	50,0	4,3	20.6.18,8	- 14,34	B.
	$\odot$ 2 L.....	.....	26,1	40,4	55,0	9,5	23,9	20.8.38,3	- 7,17	B.
Jan. 21	(h) $\odot$ 1 L.....	5,3	20,1	33,7	48,4	2,7	16,8	20.10.31,1		B.
	$\odot$ 2 L.....	24,1	38,7	53,0	7,8	22,0	36,1	20.12.50,4		B.
	(i) Aldebaran.....	46,7	0,8	14,2	28,3	42,4	56,6	4.27.10,3		B.
	(i) Rigel.....	54,8	8,1	21,2	34,9	48,2	2,1	5.7.16,0		B.
	$\beta$ Tauri.....	9,2	24,5	39,5	55,0	10,4	25,8	5.16.41,1		B.
	$\delta$ Ursæ Minoris SP....	11.51,5	15.38,3	19.25,2	23.9,6	26.59,7	30.41,3	6.34.27,8		B.
	(k) Castor.....	19,9	35,6	51,3	7,5	23,1	39,2	7.24.54,9		B.
	(k) Procyon.....	58,9	12,5	26,0	39,3	53,2	7,2	7.31.20,3		B.
Jan. 22	(k) Pollux.....	29,4	45,1	0,1	15,5	31,1	46,0	7.36.1,6		B.
	Aldebaran.....	45,1	59,2	13,0	27,1	41,2	55,1	4.27.9,2		B.
	Rigel.....	53,1	6,9	20,2	34,1	47,2	1,1	5.7.14,3		B.
	A.S.C. 641.....	10,2	25,3	39,8	55,1	9,9	24,4	5.15.39,2		B.
	(l) $\delta$ Ursæ Minoris SP....	11.49,8	15.36,7	19.22,4	23.8,2	26.58,2	30.40,6	6.34.26,8		B.
Jan. 25	Procyon.....	57,9	11,1	24,3	38,0	51,4	5,0	7.31.18,7		B.
	Pollux.....	28,1	43,9	58,4	13,9	29,2	44,9	7.36.0,1		B.
	(m) $\odot$ 1 L. ....	49,1	.....	.....	.....	.....	0,4	20.27.14,9	- 9,55	B.
	$\odot$ 2 L. .... (Temp 42°)	7,4	22,0	35,9	50,4	5,0	19,0	20.29.33,3		B.
	$\alpha$ Pegasi.....	42,5	56,1	9,8	23,9	37,8	51,9	22.57.5,7		B.
Jan. 25	$\alpha$ Andromedæ.....	58,3	13,9	28,7	44,1	59,4	14,9	0.0.30,1		B.
	Rigel.....	48,3	2,2	15,3	29,2	42,9	56,3	5.7.10,2		B.
	(n) A.S.C. 641.....	6,2	21,1	35,3	51,0	5,3	20,0	5.15.35,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.  
Transit levelled Jan. 20, 2<sup>h</sup>, and Jan. 27, 2<sup>h</sup>.

(a) Quite a blur. (b) Pretty steady. (c) Worth little, so cloudy. (d) A very faint star; magnitude 8 or 9. It appears to be A.S.C. 805. (e) Very uneven. (f) Flaming. The shutters had not been long opened. (g) Unsteady. (h) Cloudy, and wind very loud. The counting for 1 L. being found 1° wrong, all the wires except the first have been increased 1°. (i) Cloudy, and loud wind. All the wires of Rigel, except the first, have been diminished 1°. (k) Wind loud: stars flaring. (l) Steady. (m) Very cloudy, and wind loud. (n) Much disturbed: very unsatisfactory.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
16.38.37.26		+ 3.96	37.48			1.70	7.14	16.38.45.80		Venus 2 L.
17.7.12.07			12.26	20.66	8.40			17.7.20.61	+ 0.58	$\alpha$ Herculis.
17.27.21.18			21.37	29.94	8.57			17.27.29.75	+ 0.64	$\alpha$ Ophiuchi.
18.14.1.73			1.94					18.14.10.37		Mercury 2 L.
18.23.20.98	21.44		18.93	29.47	10.54			18.23.27.37	+ 25.87	$\delta$ Ursæ Minoris.
19.48.38.33			48.70					19.49.57.24		$\odot$ 's center.
19.50.58.63										
5.16.3.65			3.81	12.80	8.99		8.84	5.16.13.02	- 1.87	$\beta$ Tauri.
2.53.43.44			43.63	56.43	10.80	1.69	10.48	2.53.56.31	- 0.98	$\alpha$ Ceti.
3.40.37.33			37.55					3.40.48.29	- 1.35	$m^{\circ}$ Eridani.
4.26.35.27			35.44	46.33	10.89			4.26.46.23	- 1.50	Aldebaran.
5.6.41.74			41.94	52.76	10.82			5.6.52.78	- 1.62	Rigel.
5.15.3.07			3.28					5.15.14.13	- 1.70	A.S.C. 641.
6.5.2.00			2.15					6.5.13.06	- 2.13	$\alpha$ Aurigæ.
6.19.30.20			30.36					6.19.41.28	- 2.06	* N.P.D. 69°.7'.
6.23.14.67	13.51		16.43	29.53	13.10			18.23.27.36	+ 25.81	$\delta$ Ursæ Min. SP.
6.33.56.23			56.38					6.34.7.32	- 2.14	$\epsilon$ Geminorum.
6.36.2.40			2.56					6.36.13.53		$\gamma$ 1 L.
7.10.24.86			25.02					7.10.36.00	- 2.17	$\delta$ Geminorum.
7.24.14.19			14.33	25.31	10.98			7.24.25.33	- 2.41	Castor.
7.30.46.24			46.42	57.30	10.88			7.30.57.43	- 1.95	Procyon.
7.35.22.15			22.30	33.30	11.00			7.35.33.31	- 2.33	Pollux.
7.24.10.60		+ 3.22	10.72	25.33	14.61	1.66	14.04	7.24.25.27	- 2.43	Castor.
7.30.42.64			42.79	57.32	14.53			7.30.57.35	- 1.97	Procyon.
7.35.18.76			18.89	33.33	14.44			7.35.33.45	- 2.36	Pollux.
8.22.15.17			15.32					8.22.29.93	- 2.17	$\theta$ Cancri.
8.35.22.33			22.50					8.35.37.13	- 2.16	$\delta$ Cancri.
9.3.30.32			30.47					9.3.45.13		$\gamma$ 2 L.
9.19.30.35			30.51	45.31	14.80			9.19.45.19	- 1.75	$\alpha$ Hydrie.
9.22.22.03			22.16					9.22.36.85	- 2.19	$\alpha$ Leonis.
9.32.23.24			23.39					9.32.38.09	- 1.93	14 Leonis.
18.23.16.01	16.34		14.30	29.67	15.37			18.23.29.61	+ 25.67	$\delta$ Ursæ Minoris.
20.5.35.66										
20.7.55.03			45.51					20.7.0.94		$\odot$ 's center.
20.9.13.30						1.50	15.76	20.11.15.06		$\odot$ 's center.
20.12.7.43			58.04							
4.26.28.48			28.62	46.30	17.68		17.26	4.26.46.16	- 1.47	Aldebaran.
5.6.35.04			35.20	52.74	17.54			5.6.52.78	- 1.60	Rigel.
5.15.55.07			55.20	12.79	17.59			5.16.12.79	- 1.86	$\beta$ Tauri.
6.23.10.49	10.33		12.71	29.86	17.15			18.23.30.37	+ 25.48	$\delta$ Ursæ Min. SP.
7.24.7.36			7.48	25.35	17.87			7.24.25.20	- 2.45	Castor.
7.30.39.63			39.78	57.34	17.56			7.30.57.51	- 1.99	Procyon.
7.35.15.54			15.67	33.35	17.68			7.35.33.40	- 2.38	Pollux.
4.26.27.13			27.27	46.29	19.02	1.40	18.65	4.26.46.18	- 1.46	Aldebaran.
5.6.33.84			34.00	52.73	18.73			5.6.52.95	- 1.59	Rigel.
5.14.54.84			54.99					5.15.13.95	- 1.65	A.S.C. 641.
6.23.8.96			11.18	30.00	18.82			18.23.30.20	+ 25.54	$\delta$ Ursæ Min. SP.
7.30.38.06			38.21	57.34	19.13			7.30.57.30	- 1.99	Procyon.
7.35.14.07			14.20	33.36	19.16			7.35.33.29	- 2.39	Pollux.
20.26.31.92		+ 1.61	41.22			1.53	21.64	20.28.4.16		$\odot$ 's center.
20.28.50.42										
22.56.23.96			24.02	47.24	23.22			22.56.47.12	+ 0.52	$\alpha$ Pegasi.
23.59.44.20			44.25	7.35	23.10			0.0.7.42	+ 0.44	$\alpha$ Andromedæ.
5.6.49.20			29.25	52.70	23.45		23.17	5.6.52.75	- 1.56	Rigel.
5.14.50.57			50.61					5.15.14.11	- 1.62	A.S.C. 641.

Error of Collimation =  $1''.40$ .Level Error =  $+ 2''.17$ . From Jan. 17 =  $+ 2''.03$ . From Jan. 25 =  $+ 1''.62$ .Meridian Error from Jan. 19 by  $\delta$  Ursæ Minoris SP,  $\delta$  Ursæ Minoris, and  $\delta$  Ursæ Minoris SP, Jan. 17, 19, and 21, the interval between consecutive observations being 36 hours.Meridian Error from Jan. 25 by  $\delta$  Ursæ Minoris Jan. 29 and  $\delta$  Ursæ Minoris SP Jan. 31, allowing  $+ 2''.71$  for loss of clock and  $- 0''.21$  for change of  $\Delta t$ . The observation of  $\delta$  Ursæ Minoris Jan. 26 compared with that of Jan. 29, shews that no considerable change took place in the interval.



Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Jan. 26	ε Bootis.....	49,2	4,9	19,6	35,2	50,0	5,3	14.38.20,7		B.
	δ 2 L.....	4,1	19,0	33,3	48,7	3,4	18,0	14.41.32,9		B.
	(a) 20 Libræ.....	33,2	48,0	2,8	17,9	32,4	47,0	14.55.1,9		B.
	α Libræ.....	58,8	13,1	26,9	41,2	55,1	10,1	15.3.24,0		B.
	α Coronæ Borealis.....	44,0	59,2	14,0	29,2	44,2	59,7	15.28.14,8		B.
	α Ophiuchi.....	23,0	36,7	49,9	4,0	17,8	31,9	17.27.45,2		B.
	Venus 2 L.....	39,6	54,4	8,5	23,4	37,6	52,2	17.33.6,8		B.
	δ Ursæ Minoris.....	11.48,3	15.35,2	19.16,4	23.6,3	26.51,8	30.38,5	18.34.24,3		B.
	(b) Mercury 2 L.....	46,1	0,7	15,2	30,3	45,0	59,4	19.21.14,3		B.
Jan. 27	(c) ⊙ 1 L.....	.....	.....	34,9	49,0	4,9	17,1	20.35.31,2	- 14,20	B.
	⊙ 2 L.....	23,9	37,9	52,1	6,5	20,9	35,0	20.37.49,1		B.
	α Arietis.....	0,6	15,1	29,3	44,2	58,9	13,1	1.58.28,0		B.
	α Ceti.....	49,4	3,0	16,2	30,0	43,3	56,9	2.54.10,2		B.
	Procyon.....	50,2	3,8	16,9	30,8	44,0	57,7	7.31.11,4		B.
	Pollux.....	21,1	36,2	51,3	6,9	22,2	37,2	7.35.52,7		B.
Jan. 28	Aldebaran.....	35,9	49,9	3,5	17,9	31,9	45,7	4.26.59,7		B.
	Rigel.....	43,1	57,0	10,3	24,0	37,5	51,2	5.7.5,0		B.
	A.S.C. 641..... (hazy)	0,7	15,7	30,1	45,2	0,1	15,1	5.15.30,2		B.
Jan. 29	α Andromedæ.....	51,7	6,9	21,9	37,2	52,8	8,0	0.0.22,9		B.
	Aldebaran.....	34,1	48,1	1,9	16,1	30,0	44,1	4.26.58,1		B.
	Rigel.....	41,8	55,2	8,9	22,4	36,1	49,8	5.7.3,2		B.
	A.S.C. 641.....	59,1	14,3	28,2	43,9	59,1	13,3	5.15.28,1		B.
	α Herculis.....	8,1	21,9	35,9	49,8	3,7	17,8	17.7.31,8		B.
	(d) δ 2 L.....	8,1	24,2	40,0	55,9	11,9	27,3	17.20.43,1		B.
	α Ophiuchi.....	17,7	31,2	44,9	59,0	12,7	26,4	17.27.40,3		B.
	Venus 2 L.....	40,6	54,7	9,4	24,0	38,5	52,3	17.48.7,8		B.
	δ Ursæ Minoris.....	.....	15.30,2	19.10,5	23.0,3	26.46,8	30.32,7	18.34.18,4	- 1.52,81	B.
	(e) Mercury 2 L.....	7,5	22,2	36,3	51,5	5,9	20,5	19.40.35,2		B.
Jan. 30	(f) ⊙ 1 L.....	24,9	39,0	52,9	7,6	21,4	55,4	20.47.49,8		B.
	⊙ 2 L.....	42,0	56,3	10,1	24,9	38,8	53,0	20.50.7,4		B.
Jan. 31	(f) ⊙ 1 L.....	29,3	43,3	57,2	11,9	25,7	40,1	20.51.54,2		B.
	⊙ 2 L.....	46,3	0,8	14,4	28,8	43,0	57,0	20.54.11,3		B.
	(g) α Pegasi.....	31,9	45,7	59,4	13,8	27,2	40,9	22.56.55,0		B.
	(g) α Andromedæ.....	.....	.....	18,3	33,8	49,0	4,2	0.0.19,5	- 15,23	B.
	β Tauri.....	53,0	8,4	23,2	39,1	54,2	9,4	5.16.25,1		B.
	(h) δ Ursæ Minoris SP...	11.37,8	15.23,3	19.9,8	22.55,6	26.41,8	30.26,2	6.34.13,3		B.
	(i) Castor.....	3,8	19,8	35,4	51,7	7,5	23,3	7.24.39,2		B.
	(i) Procyon.....	42,9	56,3	9,7	23,2	36,9	50,6	7.31.4,2		B.
	(i) Pollux.....	13,8	28,9	44,1	59,3	14,5	29,9	7.35.45,0		B.
Feb. 1	(k) ⊙ 1 L.....	33,2	47,3	1,3	15,8	29,9	.....	20.55. ....	+ 14,12	B.
	⊙ 2 L.....	50,0	4,2	18,0	32,4	46,3	0,9	20.58.15,0		B.
Feb. 3	Aldebaran.....	25,3	39,3	53,0	7,4	21,5	35,4	4.26.49,5		C.
	Rigel.....	33,0	46,6	0,0	13,8	27,5	41,2	5.6.54,7		C.
	α Orionis.....	12,9	26,6	39,8	53,6	7,3	20,7	5.46.34,3		C.
	δ Ursæ Minoris SP...	.....	15.19,5	19.5,4	22.51,4	26.40,8	30.22,0	6.34.8,9	- 1.53,05	C.
Feb. 6	(l) ⊙ 2 L.....	56,0	10,2	23,9	38,2	52,2	6,0	21.18.20,3		C.
	α Pegasi.....	22,3	36,2	49,5	3,9	17,8	31,5	22.56.45,6		C.
	Rigel.....	28,0	41,4	54,8	8,8	22,4	35,8	5.6.49,4		C.
	(m) β Tauri.....	43,1	58,5	13,4	29,0	44,5	59,6	5.16.15,0		C.
	α Orionis.....	7,8	21,4	35,0	48,6	2,2	15,7	5.46.29,4		C.
Feb. 7	α Arietis.....	41,2	55,7	10,2	25,0	39,5	54,3	1.58.8,8		C.
	(n) δ Ursæ Minoris SP...	.....	.....	18.59,4	22.45,5	26.35,0	30.16,4	6.34.3,3	- 3.46,10	C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.Transit levelled, Jan. 27, 2<sup>b</sup>.Transit levelled, Feb. 11, 3—4<sup>b</sup>, in four different positions of the axis of the Telescope.

(a) Not good. (b) A blur, and very unsteady. (c) Much motion and loud wind. The wind continues this day and the next. (d) Very hazy and faint. (e) An unsteady blur. (f) Haze and much motion. (g) Very cloudy. (h) Pretty steady. (i) Great flaring. (k) Clouded and unsteady: wind loud. (l) Very ragged Limb. (m) Confused at wire I: the counting at last wire was 20° in excess. (n) Wire VI was considered good.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Fabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R. A. from the Observation.	Correc- tion to mean R. A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
14. 37. 34.99		+ 1.61	35.04	0.65	25.61	1.71	24.54	14. 38. 0.62	- 0.66	$\epsilon$ Bootis.
14. 40. 48.49			48.52					14. 41. 14.10		$\gamma$ 2 L.
14. 54. 17.60			17.64					14. 54. 43.24	- 0.33	$\delta$ 20 Librie.
15. 2. 41.31			41.36					15. 3. 6.97	- 0.31	$\delta$ 1 Librie.
15. 27. 29.50			29.35	55.21	25.86			15. 27. 54.99	- 0.28	$\alpha$ Coronæ Bor.
17. 27. 4.07			4.13	30.22	26.09			17. 27. 29.91	+ 0.36	$\alpha$ Ophiuchi.
17. 32. 23.21			23.24					17. 32. 49.03		Venus 2 L.
18. 23. 3.83	5.78		4.76	30.70	25.94			18. 23. 30.61	+ 24.64	$\delta$ Ursæ Minoris.
19. 20. 30.14			30.17					19. 20. 56.08		Mercury 2 L.
20. 34. 48.82			57.71					20. 36. 23.72		$\odot$ 's center.
20. 37. 6.49										
1. 57. 44.17				44.2	10.48	26.26	26.25	1. 58. 10.61	- 0.41	$\alpha$ Arietis.
2. 53. 29.85				29.90	56.31	26.41		2. 53. 56.36	- 0.86	$\alpha$ Ceti.
7. 30. 30.68				30.73	57.36	26.63		7. 30. 57.51	- 2.01	Procyon.
7. 35. 6.80				6.85	33.38	26.53		7. 35. 33.64	- 2.41	Pollux.
4. 26. 17.79			17.85	46.24	28.39	1.77	28.16	4. 26. 46.33	- 1.41	Aldebaran.
5. 6. 24.01			24.06	52.68	28.62			5. 6. 52.60	- 1.54	Rigel.
5. 14. 45.30			45.34					5. 15. 13.89	- 1.58	A.S.C. 641.
23. 59. 37.35			37.40	7.30	29.90	1.74	29.82	0. 0. 7.22	+ 0.49	$\alpha$ Andromedæ.
4. 26. 16.06			16.12	46.23	30.11			4. 26. 46.26	- 1.40	Aldebaran.
5. 6. 22.48			22.53	52.67	30.14			5. 6. 52.72	- 1.53	Rigel.
5. 14. 43.71			43.75					5. 15. 13.95	- 1.58	A.S.C. 641.
17. 6. 49.86			49.92	21.03	31.11	1.84	29.90	17. 7. 21.13	+ 0.21	$\alpha$ Herculis.
17. 19. 55.79			55.82					17. 20. 27.05		$\gamma$ 2 L.
17. 26. 58.89			58.95	30.30	31.35			17. 27. 30.19	+ 0.28	$\alpha$ Ophiuchi.
17. 47. 23.90			23.93					17. 47. 55.19		Venus 2 L.
18. 23. 0.34	60.29		59.27	31.11	31.84			18. 23. 30.60	+ 24.23	$\delta$ Ursæ Minoris.
19. 39. 51.30			51.33					19. 40. 22.74		Mercury 2 L.
20. 47. 7.29			16.02					20. 48. 47.52		$\odot$ 's center.
20. 49. 24.64										
20. 51. 11.67			20.29			1.71	31.76	20. 52. 53.54		$\odot$ 's center.
20. 53. 28.80										
22. 56. 13.41			13.47	47.22	33.75			22. 56. 46.87	+ 0.54	$\alpha$ Pegasi.
23. 59. 33.73			33.78	7.28	33.50			0. 0. 7.25	+ 0.51	$\alpha$ Andromedæ.
5. 15. 58.92			58.97	12.72	33.75	33.47		5. 16. 12.82	- 1.79	$\beta$ Tauri.
6. 22. 55.10	55.58		55.77	31.32	34.55			18. 23. 30.69	+ 21.92	$\delta$ Ursæ Min. SP.
7. 23. 51.52			51.56	25.40	33.84			7. 24. 25.56	- 2.50	Castor.
7. 30. 23.40			23.45	57.38	33.93			7. 30. 57.45	- 2.09	Procyon
7. 34. 59.36			59.41	33.40	33.99			7. 35. 33.42	- 2.43	Pollux.
20. 55. 15.62			24.06					20. 56. 59.02		$\odot$ 's center
20. 57. 32.40										
4. 26. 7.34		+ 1.78	7.40	46.17	38.77	1.64	38.39	4. 26. 46.09	- 1.34	Aldebaran.
5. 6. 13.83			13.89	52.64	38.72			5. 6. 52.63	- 1.47	Rigel.
5. 45. 53.60	53.58		53.67	32.44	38.74			5. 46. 32.46	- 1.71	$\alpha$ Orionis.
6. 22. 51.62	51.80		53.11	31.79	38.68			18. 23. 31.94	+ 23.55	$\delta$ Ursæ Min. SP.
21. 17. 39.12			39.19			1.75	41.55	21. 18. 21.30		$\odot$ 2 L.
22. 56. 3.83			3.92	47.21	41.29			22. 56. 47.14	+ 0.55	$\alpha$ Pegasi.
5. 6. 8.96			8.74	52.58	43.84		43.30	5. 6. 52.41	- 1.44	Rigel.
5. 15. 20.92			20.11	12.65	43.34			5. 16. 12.80	- 1.72	$\beta$ Tauri
5. 45. 48.59			48.8	32.38	43.70			5. 46. 32.40	- 1.68	$\alpha$ Orionis
1. 57. 24.96			25.04	10.33	45.29	1.76	45.13	1. 58. 10.31	- 0.26	$\alpha$ Arietis.
6. 22. 45.82	45.98		46.99	32.72	45.73			18. 23. 32.59	+ 22.62	$\delta$ Ursæ Min. SP.

Error of Collimation = - 1.40

Level Error = + 1".62. From Feb. 6 = + 27.00, the mean of four determinations.

Meridian Error by  $\alpha$  Orionis and  $\delta$  Ursæ Minoris SP. Feb. 3 = + 1".75, allowing 0.05 for clock-rate; that by  $\delta$  Ursæ Minoris SP and  $\alpha$  Hydre Feb. 7 = 1".81, allowing 0.24 for clock-rate. The mean of these is used from Feb. 3.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 7	* N.P.D. 68°. 2'.....	46,0	0,6	14,8	29,6	44,0	58,6	8. 48. 13,1		C.
	(a) * N.P.D. 25°. 2' SP....	14,6	46,0	17,7	50,3	22,0	...	9. 3. 25,4	+ 10,58	
	* N.P.D. 68°. 47'.....	7,4	21,9	36,1	50,8	5,2	19,5	9. 10. 34,1		
	α Hydræ.....	18,9	32,5	45,7	59,7	13,3	26,8	9. 19. 40,4		
	Regulus.....	25,7	39,4	53,0	7,1	20,8	34,6	9. 59. 48,5		
Feb. 8	β 1 L.....	18,6	32,5	46,4	0,8	14,9	29,1	1. 17. 43,0		C.
	β Arietis.....	19,1	33,5	47,5	2,0	16,4	30,7	1. 45. 45,0		
	α Arietis.....	39,6	54,2	8,5	23,3	38,0	52,5	1. 58. 7,0		
	(b) α Ceti.....	...	...	...	8,8	22,4	35,9	2. 53. 49,3	- 20,25	
	(c) Aldebaran.....	16,8	30,9	44,7	58,9	13,0	27,0	4. 26. 40,8		
Feb. 9	(b) β Tauri.....	...	54,7	10,0	25,5	40,7	56,1	5. 16. 11,5	- 7,64	C.
	(d) β 1 L.....	19,3	33,8	48,0	2,7	17,3	31,7	2. 12. 46,4		
	ν Arietis.....	13,1	27,3	41,4	56,2	10,6	25,1	2. 29. 39,5		
	ε Arietis.....	33,0	47,5	1,6	16,2	30,6	44,8	2. 49. 59,1		
	α Ceti.....	26,6	40,2	53,4	7,0	20,5	34,0	2. 53. 47,6		
Feb. 10	Aldebaran.....	14,9	29,0	42,6	56,8	11,0	25,1	4. 26. 39,1		C.
	δ Ursæ Minoris.....	...	15.12,4	18.54,0	22.43,8	26.29,2	30.14,6	18. 34. 0,8	- 1. 52,78	
	Venus 2 L.....	35,2	49,6	4,0	18,7	33,3	...	18. 49. 2,4	+ 4,85	
	(e) α Aquilæ.....	25,3	38,8	52,3	6,2	19,7	38,0	19. 42. 46,6		
	(f) ⊙ 1 L.....	27,5	41,0	54,8	8,9	22,8	36,8	21. 35. 50,7		
Feb. 11	⊙ 2 L.....	41,3	55,3	9,0	23,1	37,0	50,9	21. 38. 4,8		C.
	(g) α Andromedæ.....	29,2	44,5	59,5	15,0	30,3	45,6	0. 0. 0,8		
	η Tauri.....	23,4	38,2	52,6	7,5	22,1	36,8	3. 37. 51,4		
	(h) α <sup>1</sup> Tauri.....	39,8	54,3	8,4	23,1	37,6	52,0	3. 55. 6,6		
	β 1 L.....	32,3	47,7	3,0	18,8	34,3	49,8	4. 15. 5,3		
Feb. 12	Aldebaran.....	11,5	25,5	39,2	53,4	7,5	21,5	4. 26. 35,5		C.
	ι Aurigæ..... (cloudy)	55,7	11,8	27,6	44,0	59,8	16,0	4. 46. 31,9		
	(i) ι Tauri.....	57,8	12,3	26,4	41,1	55,5	10,2	4. 53. 24,4		
	(k) Rigel.....	19,0	32,6	46,0	0,0	13,3	27,0	5. 6. 40,6		
	(l) β Tauri.....	34,2	49,6	4,4	20,0	35,3	50,7	5. 16. 6,0		
Feb. 13	Aldebaran..... (blazing)	9,8	23,7	37,5	51,8	5,7	19,9	4. 26. 33,9		C.
	ι Aurigæ.....	54,3	10,3	26,1	42,2	58,3	14,4	4. 46. 30,4		
	ι Tauri.....	56,2	10,6	24,5	39,3	54,0	8,3	4. 53. 22,7		
	Rigel..... (blazing)	17,4	31,0	44,4	58,3	11,7	25,4	5. 6. 39,0		
	β Tauri.....	32,5	47,6	2,8	18,3	33,6	49,0	5. 16. 4,4		
Feb. 13	β 1 L.....	51,4	7,1	22,5	38,3	54,2	9,8	5. 21. 25,7		C.
	γ Tauri.....	38,5	53,5	8,4	23,9	39,0	54,2	5. 43. 9,5		
	α Orionis.....	57,4	10,8	24,2	38,0	51,6	5,2	5. 46. 18,6		
	(m) κ Aurigæ.....	32,3	48,0	3,0	18,6	34,2	49,8	6. 5. 5,2		
	δ Ursæ Minoris SP....	11.21,3	15. 7,4	18.54,0	22.38,8	26.28,7	30.10,6	6. 33. 56,0		
Feb. 13	δ Ursæ Minoris.....	...	...	...	22.40,0	26.25,3	30.12,1	18. 33. 57,8	- 5. 39,31	C.
	(n) Mercury 2 L.....	...	...	...	...	42,3	56,4	21. 14. 10,3	- 28,47	
	⊙ 1 L.....	16,5	30,4	43,7	58,0	11,8	26,0	21. 43. 39,7		
	⊙ 2 L.....	30,4	44,0	57,8	11,9	25,6	39,6	21. 45. 53,5		
	(o) α Andromedæ.....	26,2	41,2	56,1	11,8	27,0	42,3	23. 59. 57,5		
Feb. 13	(p) α Ceti.....	19,9	33,2	46,5	0,4	13,7	27,4	2. 53. 40,7		C.
	β Tauri.....	30,8	46,3	1,3	16,9	32,1	47,3	5. 16. 2,6		
	γ Tauri.....	36,8	51,9	7,0	22,4	37,6	52,7	5. 43. 8,0		
	α Orionis.....	55,7	9,2	22,5	36,4	49,7	3,5	5. 46. 16,7		
	κ Aurigæ.....	30,7	46,2	1,5	17,2	32,7	48,1	6. 5. 3,5		
Feb. 13	δ Ursæ Minoris SP....	11.18,5	15. 6,3	18.52,4	22.37,5	...	...	6. 33. 54,3	+ 2. 16,11	C.
	(q) β 1 L.....	54,5	10,0	25,3	41,4	56,8	12,8	6. 28. 28,5		
	τ Geminorum.....	16,5	32,2	47,6	3,4	19,0	34,6	7. 0. 50,3		
	δ Geminorum.....	56,4	10,7	25,2	40,0	54,5	9,1	7. 10. 23,6		
	(r) Procyon.....	20,8	34,4	47,7	1,4	14,8	28,5	7. 30. 41,8		

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

(a) Very doubtful, particularly wires IV, V, and VII, the star being very faint. (b) Hurried: not good. (c) Wire II was written down 29,9. (d) Not quite satisfactory. (e) Not good; unsteady. (f) Good observation: thin clouds passing over. (g) Considered good. (h) Sometimes so cloudy as to be scarcely visible. (i) Scarcely seen through clouds: wire V was written down by mistake 44,5. (k) Unsatisfactory. (l) Through clouds: the star appeared a mere speck. (m) Disturbed at wire II. (n) Hurried: seen late. (o) Very unsteady. (p) Marked 'not good'. (q) Confused in the counting after wire V: wires VI and VII were written down 13,8 and 22,5. (r) Blazing enormously.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	A.	"	S.	A.	S.	A.	A.	A. M. S.	A.	
8.47.29.53		+1.78	29.61			1.76	45.13	8.48.15.38	-2.43	* N.P.D. 68°.2'
9.1.49.91			50.25					21.2.36.04	+3.67	* s.p.d. 25°.2'.SP
9.9.50.71			50.79					9.10.36.59	-2.42	* N.P.D. 68°.47'
9.18.59.62	59.59		59.70	45.55	45.85			9.19.45.51	-1.99	$\alpha$ Hydra.
9.59.7.02			7.11	52.92	45.81			9.59.52.97	-2.22	Regulus.
1.17.0.75			0.83			1.78	46.83	1.17.47.76		$\delta$ 1 L.
1.45.2.03			2.12					1.45.49.08	-0.18	$\beta$ Arietis.
1.57.23.30			23.38	10.32	46.94			1.58.10.35	-0.25	$\alpha$ Arietis.
2.53.8.85			8.93	56.15	47.22			2.53.55.97	-0.70	$\alpha$ Ceti.
4.25.58.88			58.96	46.11	47.15			4.26.46.12	-1.28	Aldebaran.
5.15.25.44			25.53	12.62	47.09			5.16.12.75	-1.69	$\beta$ Tauri.
2.12.2.74		+1.20	2.81			1.86	48.78	2.12.51.76		$\delta$ 1 L.
2.28.56.17			56.22					2.29.45.19	-0.44	$\gamma$ Arietis.
2.49.16.12			16.17					2.50.5.17	-0.59	$\epsilon$ Arietis.
2.53.7.05			7.10	56.13	49.03			2.53.56.10	-0.68	$\alpha$ Ceti.
4.25.56.93			56.99	46.09	49.10			4.26.46.11	-1.26	Aldebaran.
18.22.43.02	43.32		42.56	33.55	50.99	1.69	50.56	18.23.34.41	+21.79	$\delta$ Ursæ Minoris.
18.48.18.72			18.73					18.49.10.61		Venus 2 L.
19.42.52.99			6.05	58.17	52.12			19.42.58.00	+0.46	$\alpha$ Aquilæ.
21.35.8.93			16.04					21.37.8.12		$\odot$ 's center.
21.37.23.06			15.06	7.18	52.12			0.0.7.31	+0.61	$\alpha$ Andromedæ.
23.59.14.99			7.49				52.25	3.38.0.00	-0.90	$\eta$ Tauri.
3.37.7.43			23.16					3.55.15.68	-1.03	$\Delta^1$ Tauri.
3.54.23.11			18.81					4.15.11.36		$\delta$ 1 L.
4.14.18.75			53.50	46.06	52.56			4.26.46.06	-1.23	Aldebaran.
4.25.53.44			43.89					4.46.36.48	-1.49	$\epsilon$ Aurigæ.
4.45.43.83			41.15					4.53.33.74	-1.42	$\epsilon$ Tauri.
4.52.41.10			59.82	52.52	52.70			5.6.52.43	-1.38	Rigel.
5.6.59.78			20.09	12.59	52.50			5.16.12.71	-1.66	$\beta$ Tauri.
5.15.20.02			51.81	46.05	54.24	1.62	53.90	4.26.46.01	-1.22	Aldebaran.
4.25.51.75			42.34					4.46.36.56	-1.46	$\epsilon$ Aurigæ.
4.45.42.28			39.43					4.53.33.66	-1.41	$\epsilon$ Tauri.
4.52.39.38			58.21	52.50	54.29			5.6.52.45	-1.36	Rigel.
5.5.58.17			18.39	12.57	54.18			5.16.12.65	-1.64	$\beta$ Tauri.
5.15.18.32			38.50					5.21.32.76		$\delta$ 1 L.
5.20.38.43			23.92					5.43.18.21	-1.82	$\epsilon$ Tauri.
5.42.23.85			38.03	32.33	54.30			5.46.32.32	-1.63	$\alpha$ Orionis.
5.45.37.97			18.79					6.5.13.10	-1.99	$\epsilon$ Aurigæ.
6.4.18.73			40.29	33.87	53.58			18.23.34.62	+21.47	$\delta$ Ursæ Min. SP.
6.22.39.54	39.40		39.23	33.97	54.74	1.60	53.86	18.23.34.32	+21.37	$\delta$ Ursæ Minoris.
18.22.39.40	39.79	+0.88	27.87					21.14.23.14		Mercury 2 L.
21.15.27.86			4.95					21.45.0.26		$\odot$ 's center.
21.42.58.02			11.79	7.17	55.38			0.0.7.25	+0.62	$\alpha$ Andromedæ.
21.45.11.83			0.28	56.08	55.80		55.46	2.53.55.93	-0.63	$\alpha$ Ceti.
23.59.11.73			16.82	12.56	55.74			5.16.12.63	-1.63	$\beta$ Tauri.
2.53.0.25			22.40					5.43.18.24	-1.81	$\epsilon$ Tauri.
3.15.16.76			36.28	32.31	56.03			5.46.32.13	-1.61	$\alpha$ Orionis.
3.42.32.34			17.19					6.5.13.05	-1.98	$\epsilon$ Aurigæ.
3.45.36.24			38.42	34.08	55.66			18.23.34.31	+21.20	$\delta$ Ursæ Min. SP.
6.4.17.13	37.77		41.39					6.28.37.28		$\delta$ 1 L.
6.23.37.91			3.45					7.0.59.36	-2.32	$\gamma$ Geminorum.
6.27.41.33			39.96					7.10.35.90	-2.19	$\delta$ Geminorum.
7.0.3.37			1.37	57.55	55.98			7.30.57.33	-2.00	Procyon.
7.9.39.62										
7.30.1.14										

Error of Collimation = -1".46.

Level Error = +2".00.

Meridian Error from Feb. 9 by  $\delta$  Ursæ Minoris Feb. 10 and  $\delta$  Ursæ Minoris Feb. 12, allowing +2".59 for clock-rate and -0".22 for change of M.Meridian Error from  $\delta$  Ursæ Minoris Feb. 12, by  $\delta$  Ursæ Minoris SP,  $\delta$  Ursæ Minoris, and  $\delta$  Ursæ Minoris SP Feb. 12 and 13.

Month and Day.	NAME OF STAR OR PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 13	Pollux.....	51,7	7,2	22,1	37,6	52,8	8,1	7.35.23,5		C.
	(a) Venus 2 L.....	54,4	9,2	23,5	38,0	52,7	6,7	19.4.21,8		C.
	α Aquilæ.....	20,6	34,3	47,6	1,5	14,8	28,5	19.42.42,0		C.
Feb. 14	⊙ 1 L.....	9,7	23,6	36,8	51,0	4,8	18,8	21.47.32,8		C.
	⊙ 2 L.....	23,3	37,1	50,6	4,8	18,7	32,5	21.49.46,5		C.
	α Andromedæ.....	24,3	39,5	54,4	10,0	25,2	40,6	23.59.55,7		C.
	τ Geminorum.....	15,0	30,7	45,8	1,7	17,4	33,0	7.0.48,5		C.
	δ Geminorum.....	54,6	9,3	23,5	38,2	52,8	7,4	7.10.22,0		C.
	Castor.....	40,2	56,1	11,6	27,8	43,6	59,7	7.24.15,6		C.
	Procyon.....	19,3	32,7	45,9	59,8	13,4	26,6	7.30.40,5		C.
	(b) ♃ 1 L.....	53,9	9,5	24,0	39,8	55,2	10,6	7.33.25,8		C.
	6 Cancri.....	0,0	15,3	30,3	45,6	1,0	16,4	7.53.31,6		C.
	θ Cancri.....	50,0	4,1	18,2	32,5	46,7	1,0	8.22.15,2		C.
Feb. 17	(c) ν Leonis..... (Temp. 48°·5)	54,6	8,3	22,0	36,0	49,6	3,5	9.49.17,4		C.
	(d) Regulus..... (cloudy)	...	22,5	36,0	50,0	3,8	17,6	9.59.31,5	- 6,89	C.
	(e) ♃ 2 L.....	16,2	30,3	44,1	58,5	12,2	26,3	10.24.40,2		C.
	ι Leonis.....	8,5	22,3	35,7	49,7	3,4	17,2	10.40.30,8		C.
	χ Leonis.....	4,0	17,5	31,0	44,7	58,3	11,9	10.56.25,4		C.
	β Leonis.....	10,8	24,8	38,6	52,7	6,7	20,6	11.40.34,6		C.
	(f) Venus 2 L.....	19,3	33,8	48,0	2,6	17,2	31,6	19.24.46,0		C.
Feb. 22	Aldebaran.....	51,7	5,4	19,5	33,8	47,8	1,7	4.27.15,7		C.
	α Orionis.....	39,4	52,9	6,3	20,1	33,7	47,5	5.47.0,7		C.
Feb. 23	δ Ursæ Minoris.....	12.0,3	15.47,4	19.28,6	23.18,3	27.4,5	30.49,8	18.54.35,4		C.
	α Aquilæ.....	2,6	16,1	29,5	43,3	56,8	10,5	19.43.24,3		C.
	(g) Venus 2 L.....	46,8	1,4	15,4	30,0	44,6	58,8	19.56.13,3		C.
Feb. 24	⊙ 1 L.....	22,5	36,3	49,8	3,7	17,3	30,9	22.26.44,7		C.
	⊙ 2 L.....	34,2	47,9	1,3	15,2	29,0	42,5	22.28.56,3		C.
	(h) α Andromedæ.....	...	...	...	51,6	6,8	22,3	0.0.37,4	- 22,91	C.
	(i) α Hydriæ.....	48,7	2,5	15,6	29,5	42,9	56,4	9.20.10,2		C.
	Regulus.....	55,6	9,4	22,8	36,8	50,6	4,5	10.0.18,2		C.
	(k) Venus 2 L.....	50,2	4,5	18,5	32,8	47,7	2,3	20.1.16,5		B.
Feb. 25	⊙ 1 L.....	7,7	21,0	34,7	48,5	2,7	16,0	22.30.29,4		B.
	⊙ 2 L..... (misty)	19,3	33,1	46,9	0,8	14,3	28,0	22.32.41,6		B.
	Aldebaran.....	46,0	0,2	13,7	27,8	41,9	55,9	4.27.10,0		B.
	β Tauri.....	8,3	23,9	38,9	54,2	9,9	25,1	5.16.40,2		B.
	ε Ursæ Minoris SP....	12.4,8	15.49,3	19.34,8	23.20,8	27.11,6	30.52,4	6.34.37,7		B.
Feb. 26	♃ 2 L..... (haze)	49,2	5,1	20,9	37,0	53,0	8,5	17.53.24,2		B.
	δ Ursæ Minoris.....	11.57,4	15.44,2	19.25,2	23.15,0	27.0,3	30.47,2	18.34.33,8		B.
	α Aquilæ.....	56,7	10,1	23,8	37,1	50,9	4,7	19.43.18,1		B.
	Venus 2 L.....	54,4	8,6	22,7	37,4	51,7	6,3	20.11.20,5		B.
Feb. 27	(g) ⊙ 1 L.....	...	...	4,0	18,1	32,0	45,2	22.37.59,1	- 13,61	B.
	⊙ 2 L.....	48,9	2,2	15,7	29,4	43,1	57,0	22.40.10,9		B.
	α Pegasi.....	44,1	57,9	11,7	25,9	39,5	53,8	22.57.7,4		B.
Feb. 28	⊙ 1 L.....	21,2	35,0	48,1	2,3	15,8	29,5	22.41.43,0		B.
	⊙ 2 L.....	32,5	46,1	59,3	13,2	27,0	40,6	22.43.54,1		B.
	(l) Mercury 1 L.....	21,6	35,2	...	3,1	16,3	...	22.58.43,9	+ 2,69	B.
	α Aquilæ.....	52,8	6,2	19,7	33,4	47,1	0,6	19.43.14,1		B.
	(m) Venus 2 L.....	56,3	10,4	24,9	39,3	53,5	7,6	20.21.21,9		B.
Feb. 29	⊙ 1 L.....	4,7	18,2	31,3	45,2	59,0	12,7	22.45.26,3		B.
	⊙ 2 L.....	15,5	29,2	43,0	56,8	10,1	24,0	22.47.37,3		B.
	(l) α Pegasi.....	...	...	...	...	35,9	49,8	22.57.3,5	- 27,79	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.Feb. 22, 1<sup>h</sup>. The Transit was levelled and the clock was put forward 1<sup>m</sup>. March 2, 2<sup>h</sup>. The Transit was levelled.

(a) Very unsatisfactory. (b) Hurried; the seconds not taken from clock. The counting being found 16<sup>s</sup> in advance, the observation has been altered accordingly. (c) Just after opening the shutters. The star appeared to move very irregularly. (d) Seconds not taken from clock; counting found 6<sup>s</sup> in defect. (e) Wires IV, V, and VI very cloudy and doubtful. (f) After this to the 22d the weather was cloudy. (g) Very unsteady. (h) Hurried and unsatisfactory, except the last wire. (i) Not good. (k) Cloudy and very unsteady. (l) Very cloudy. (m) Disturbed.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
7.34.37.57 19.3.38.05 19.42.1.33		+0.88	37.63 38.04 1.37	33.39 58.23	55.76 56.86	1.60 1.67	55.46 55.42	7.35.33.59 19.4.34.79 19.42.58.16	-2.42  +0.40	Pollux. Venus 2 L. α Aquilæ.
21.46.51.07 21.49.4.79 23.59.9.95 7.0.1.73 7.9.38.26 7.25.27.80 7.29.59.75 7.32.39.83 7.52.45.75 8.21.32.53			57.94 10.01 1.79 38.30 27.85 59.78 39.88 45.81 32.58	7.17 57.16			57.09	21.48.54.88 0.0.7.10 7.0.59.37 7.10.35.89 7.24.25.45 7.30.57.39 7.33.37.49 7.53.43.45 8.22.30.25	 +0.62 -2.31 -2.18 -2.47 -2.00  -2.49 -2.35	☉'s center. α Andromedæ. γ Geminorum. δ Geminorum. Castor. Procyon. γ 1 L. δ Cancri. θ Cancri.
9.48.35.91 9.58.50.01 10.23.58.26 10.39.49.66 10.55.44.69 11.59.52.68 19.24.2.64			35.96 50.06 58.30 49.70 44.73 52.73 2.63	53.03 55.88	62.97 63.15	1.77	62.26	9.49.38.94 9.59.53.06 10.25.1.33 10.40.52.75 10.56.47.79 11.40.55.85 19.25.6.32	-2.35 -2.33  -2.27 -2.18 -2.19	ν Leonis. Regulus. γ 2 L. ι Leonis. χ Leonis. β Leonis. Venus 2 L.
4.26.33.66 5.46.20.08		-1.12	33.73 20.12	45.90 32.20	12.17 12.08	1.87	11.73	4.26.45.80 5.46.32.30	-1.07 -1.50	Aldebaran. α Orionis.
18.23.17.76 19.42.43.30 19.55.30.04	19.85		20.56 43.34 29.95	37.00 58.44	16.44 15.10	1.97	13.45	18.23.35.52 19.42.58.41 19.55.45.03	+18.34 +0.19	δ Ursæ Minoris. α Aquilæ. Venus 2 L.
22.26.3.60 22.28.15.20 23.59.51.61 9.19.29.40 9.59.36.84 20.0.33.21			9.36 51.74 29.36 36.90 33.12	7.12 45.62 53.08	15.38 16.26 16.18		15.42	22.27.24.65 0.0.7.16 9.19.45.54 9.59.53.14 20.0.50.24	+0.67 -2.06 -2.38	☉'s center. α Andromedæ. α Hydoræ. Regulus. Venus 2 L.
22.29.48.57 22.31.0.57 4.26.27.93 5.15.54.36 6.23.21.63			54.53 28.00 54.49 19.04	45.85 12.37 37.43	17.85 17.88 18.39		17.46	22.31.11.87 4.26.45.83 5.16.12.40 18.23.37.04	 -1.02 -1.44 +17.91	☉'s center. Aldebaran. β Tauri. δ Ursæ Min. SP.
17.52.36.84 18.23.14.73 19.42.57.35 20.10.37.27	19.82		36.69 17.53 37.59 37.28	37.84 58.51	20.31 21.12	2.00	19.50	17.52.57.68 18.23.38.56 19.42.58.53 20.10.58.47	+17.50 +0.12	γ 2 L. δ Ursæ Minoris. α Aquilæ. Venus 2 L.
22.37.18.07 22.39.29.60 22.56.25.76			23.80 25.82	47.25	21.13			22.38.45.18 22.56.47.23	 +0.51	☉'s center. α Pegasi.
22.41.2.13 22.43.13.26 22.58.2.71 19.42.33.41 20.20.39.13		-0.29	7.67 2.68 33.42 39.07	58.55	25.13	1.97	21.40	22.42.30.94 22.58.25.97 19.42.58.41 20.21.4.11	  +0.08	☉'s center. Mercury 1 L. α Aquilæ. Venus 2 L.
21.44.45.34 22.46.46.56 22.56.21.94			50.92 21.97	47.56	25.29			22.46.16.16 22.56.47.22	 +0.50	☉'s center. α Pegasi.

Error of Collimation = -1".46.

Level Error = +2".00. From Feb. 22 = +37.93. (See Introduction). From Feb. 28 = +2".50.

Meridian Error from Feb. 22 by δ Ursæ Minoris, δ Ursæ Minoris SP, and δ Ursæ Minoris, Feb. 23, 25, and 26, the interval between the observations being 36 hours.

The determinations of Meridian Error by Aldebaran and δ Ursæ Minoris SP on Feb. 29 and March 2, 3, 4, 5, and 9, (allowing 0".17 for clock rate) are respectively, +0".22, -1".01, -0".34, +0".38, 0".00, and -0".87. The mean of these is used from Feb. 28.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 29	(a) Mercury 1 L.....	.....	33,0	46,1	59,6	13,3	27,0	23. 5. 40,9	- 6,80	B.
	(a) α Andromedæ.....	.....	11,1	26,0	41,8	57,0	12,5	0. 0. ....	+ 0,02	B.
	Aldebaran.....	37,9	52,1	5,9	20,0	33,9	47,9	4. 27. 2,0		B.
	δ Ursæ Minoris SP....	.....	15.40,2	19.28,2	23.12,3	27. 1,6	30.43,8	6. 34. 29,7	- 1. 52,99	B.
	Castor.....	11,7	27,6	43,1	59,2	15,3	30,9	7. 24. 46,9		B.
	Procyon.....	50,8	4,1	17,6	31,1	44,7	58,2	7. 31. 12,1		B.
	(b) Pollux.....	21,4	36,9	52,4	7,8	22,8	38,1	7. 35. 53,4		B.
Mar. 1	α Aquilæ.....	48,7	2,1	15,6	29,2	43,0	56,4	19. 43. 10,0		B.
	(c) β Aquilæ.....	17,4	31,0	44,1	58,0	11,7	25,1	19. 47. 38,6		B.
	Venus 2 L.....	54,8	9,3	23,4	37,6	51,8	6,4	20. 31. 20,5		B.
Mar. 2	(d) ☉ 1 L.....	29,7	43,1	56,5	10,3	24,0	37,6	22. 52. 51,2		B.
	☉ 2 L.....	40,8	54,3	8,0	21,8	35,1	48,9	22. 55. 2,5		B.
	(d) Mercury 1 L.....	11,4	25,1	38,3	52,1	5,8	19,1	23. 19. 33,0		B.
	α Andromedæ.....	51,8	7,1	21,8	37,4	53,1	8,1	0. 0. 23,3		B.
	Aldebaran.....	33,9	48,0	1,8	16,0	29,9	44,0	4. 26. 58,1		B.
	δ Ursæ Minoris SP...	11.52,4	15.37,7	19.25,2	23. 9,5	26.59,7	30.41,4	6. 34. 27,8		B.
	Castor..... (Temp. 30°)	7,7	23,5	39,0	55,0	11,1	26,9	7. 24. 43,0		B.
	Procyon.....	46,7	0,3	13,3	27,2	40,9	54,2	7. 31. 7,9		B.
	Pollux.....	17,3	32,5	47,8	3,2	18,3	33,9	7. 35. 49,0		B.
	(d) Venus 2 L.....	52,3	...	21,5	36,3	50,4	4,7	20. 36. 18,7	- 4,74	B.
Mar. 3	Aldebaran.....	31,9	46,0	59,8	14,0	27,9	42,0	4. 26. 56,0		B.
	δ Ursæ Minoris SP...	11.50,6	15.34,5	19.25,3	23. 7,3	26.57,4	30.38,7	6. 34. 24,8		B.
	Castor.....	5,9	21,4	37,1	53,1	9,1	24,9	7. 24. 40,9		B.
	Procyon.....	44,7	58,2	11,7	25,2	39,1	52,2	7. 31. 6,0		B.
	Pollux.....	15,2	30,6	45,8	1,2	16,4	31,9	7. 35. 47,1		B.
	α Aquilæ.....	44,8	58,1	11,9	25,8	39,4	52,9	19. 43. 6,4		B.
	β Aquilæ..... (faint)	13,6	27,0	40,7	54,0	7,8	21,1	19. 47. 34,8		B.
	(c) Venus 2 L.....	50,7	5,1	18,6	33,5	47,4	1,7	20. 41. 16,3		B.
Mar. 4	(d) ☉ 1 L.....	52,7	6,0	19,3	33,1	46,9	0,8	23. 0. 14,1		B.
	☉ 2 L.....	3,2	17,0	30,2	44,0	57,5	11,0	23. 2. 24,4		B.
	(f) Mercury 1 L.....	59,0	12,7	25,8	39,7	53,1	6,9	23. 33. 20,1		B.
	α Andromedæ.... (mist)	47,9	3,0	17,9	33,7	48,9	4,0	0. 0. 19,3		B.
	Aldebaran.....	30,0	43,9	57,7	12,0	25,9	40,0	4. 26. 53,9		B.
	δ Ursæ Minoris SP...	11.47,8	15.33,3	19.19,5	23. 6,3	26.56,2	30.37,6	6. 34. 23,3		B.
	Castor..... (Temp. 30°)	3,7	19,3	35,2	51,1	7,1	23,0	7. 24. 39,0		B.
	Procyon..... (flaring)	42,6	56,1	9,4	23,2	36,9	50,2	7. 31. 4,1		B.
	Pollux.....	13,1	28,7	43,7	59,1	14,3	30,1	7. 35. 45,1		B.
	α Aquilæ.....	42,9	56,2	9,8	23,4	37,2	50,8	19. 43. 4,3		B.
	(g) Venus 2 L.....	47,5	1,6	15,5	29,9	44,6	58,5	20. 46. 12,4		B.
	(h) α Pegasi.....	.....	.....	.....	11,9	26,0	39,8	22. 56. 53,5	- 20,85	B.
Mar. 5	☉ 1 L.....	33,2	47,1	0,5	14,1	27,1	41,1	23. 3. 54,9		B.
	☉ 2 L.....	44,0	57,4	11,0	24,7	38,2	51,5	23. 6. 5,2		B.
	(i) Mercury 1 L.....	49,3	2,9	16,0	29,8	43,3	56,8	23. 40. 10,3		B.
	(k) α Andromedæ.....	.....	.....	.....	.....	47,1	2,2	0. 0. 17,3	- 30,53	B.
	Aldebaran..... (flaring)	27,7	41,9	55,4	10,0	24,1	38,2	4. 26. 51,9		B.
	δ Ursæ Minoris SP....	11.47,6	15.30,7	19.19,4	23. 3,8	26.55,4	30.34,7	6. 34. 22,2		B.
	Castor.....	1,5	17,4	33,0	49,2	5,0	21,1	7. 24. 37,0		B.
	Procyon.....	40,9	54,3	7,5	21,1	34,4	48,2	7. 31. 2,1		B.
	Pollux.....	11,3	26,4	41,5	57,0	12,4	27,9	7. 35. 43,1		B.
	α Aquilæ.....	41,0	54,2	7,9	21,7	35,2	48,9	19. 43. 2,4		B.
	β Aquilæ.....	.....	.....	.....	50,3	4,0	17,3	19. 47. 30,8	- 20,31	B.
	(g) Venus 2 L.....	43,3	57,5	11,4	25,7	39,7	54,4	20. 51. 8,4		B.
Mar. 6	☉ 1 L.....	14,0	27,8	41,1	54,8	8,3	21,9	23. 7. 35,4		B.
	☉ 2 L.....	24,2	58,0	51,2	5,0	18,4	32,0	23. 9. 45,6		B.
	Mercury 1 L.....	35,8	49,4	3,0	16,4	30,1	43,3	23. 46. 57,0		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

- (a) Very cloudy.  
 (b) Blazing: marked 'bad'.  
 (c) Very faint.  
 (d) Great motion.  
 (e) Badly defined and unsteady.

- (f) Hazy.  
 (g) Unsteadiness and bad definition.  
 (h) Very faint, so near noon.  
 (i) Very great motion.  
 (k) Faint and unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
23. 4. 59.85		- 0.29	59.82			1.97	23.37	23. 5. 25.09		Mercury 1 L.
23. 59. 41.70			41.75	7.10	25.35			0. 0. 7.09	+ 0.69	$\alpha$ Andromedæ.
4. 26. 19.95	19.99		19.98	45.79	25.81		25.34	4. 26. 45.68	- 0.96	Aldebaran.
6. 23. 12.98	12.42		12.21	38.54	26.33			18. 23. 38.07	+ 16.80	$\delta$ Ursæ Min. SP.
7. 23. 59.25			59.31	25.23	25.92			7. 24. 25.26	- 2.33	Castor.
7. 30. 31.23			31.24	57.24	26.00			7. 30. 57.20	- 1.89	Procyon.
7. 35. 7.55			7.61	33.27	25.66			7. 35. 33.57	- 2.30	Pollux.
19. 42. 29.29			29.30	58.60	29.30	1.98	27.49	19. 42. 58.41	+ 0.03	$\alpha$ Aquilæ.
19. 46. 57.99			58.00	27.25	29.25			19. 47. 27.12	+ 0.02	$\beta$ Aquilæ.
20. 30. 37.69			37.63					20. 31. 6.80		Venus 2 L.
22. 52. 10.34			15.96					22. 53. 45.33		$\odot$ 's center.
22. 54. 21.63			52.08					23. 19. 21.49		Mercury 1 L.
23. 18. 52.11			37.57	7.10	29.53			0. 0. 7.04	+ 0.69	$\alpha$ Andromedæ.
23. 59. 37.52	16.00		15.99	45.73	29.76		29.47	4. 26. 45.82	- 0.92	Aldebaran.
4. 26. 15.96	9.97		9.76	39.16	29.40			18. 23. 39.75	+ 16.18	$\delta$ Ursæ Min. SP.
6. 23. 10.53			55.23	25.21	29.98			7. 24. 25.31	- 2.31	Castor.
7. 23. 55.17			27.23	57.22	29.99			7. 30. 57.32	- 1.87	Procyon.
7. 30. 27.22			3.20	33.25	30.05			7. 35. 53.29	- 2.28	Pollux.
7. 35. 3.14			35.85			1.95	29.40	20. 36. 6.92		Venus 2 L.
20. 35. 35.91										
4. 26. 13.94	13.98		13.97	45.74	31.77		31.35	4. 26. 45.68	- 0.91	Aldebaran.
6. 23. 8.37	7.81		7.60	39.50	31.90			18. 23. 39.47	+ 15.84	$\delta$ Ursæ Min. SP.
7. 23. 53.20			53.26	25.19	31.93			7. 24. 25.21	- 2.29	Castor.
7. 30. 25.30			25.31	57.20	31.89			7. 30. 57.27	- 1.85	Procyon.
7. 35. 1.17			1.23	33.23	32.00			7. 35. 33.20	- 2.26	Pollux.
19. 42. 25.61			25.62	58.65	33.03	2.03	31.37	19. 42. 58.65	- 0.02	$\alpha$ Aquilæ.
19. 46. 54.14			54.15	27.30	33.15			19. 47. 27.19	- 0.03	$\beta$ Aquilæ.
20. 40. 33.33			33.27					20. 41. 6.39		Venus 2 L.
22. 59. 33.27			38.56					23. 1. 11.87		$\odot$ 's center.
23. 1. 43.90			39.59					23. 33. 12.95		Mercury 1 L.
23. 32. 39.62			33.58	7.10	33.52			0. 0. 6.98	+ 0.69	$\alpha$ Andromedæ.
23. 59. 33.53	11.95		11.94	45.72	33.78		33.40	4. 26. 45.71	- 0.89	Aldebaran.
4. 26. 11.91	5.73		5.32	39.86	34.34			18. 23. 39.46	+ 15.48	$\delta$ Ursæ Min. SP.
6. 23. 6.29			51.26	25.18	33.92			7. 24. 25.28	- 2.28	Castor.
7. 23. 51.20			25.22	57.19	33.97			7. 30. 57.25	- 1.84	Procyon.
7. 30. 23.21			59.22	33.22	34.00			7. 35. 33.26	- 2.25	Pollux.
7. 34. 59.16			25.52	58.68	35.16	2.01	33.38	19. 42. 58.55	- 0.05	$\alpha$ Aquilæ.
19. 42. 25.51			29.94					20. 46. 5.06		Venus 2 L.
20. 45. 30.00			11.98	47.28	35.30			22. 56. 47.28	- 0.48	$\alpha$ Pegani.
22. 56. 11.95										
23. 3. 14.00			19.26					23. 4. 54.58		$\odot$ 's center.
23. 5. 24.57			29.76					23. 40. 5.12		Mercury 1 L.
23. 39. 29.78			31.72	7.10	35.38			0. 0. 7.11	+ 0.69	$\alpha$ Andromedæ.
23. 59. 31.67	9.92		9.91	45.71	35.80		35.39	4. 26. 45.67	- 0.88	Aldebaran.
4. 26. 9.88	4.27		4.06	40.23	36.17			18. 23. 39.99	+ 15.11	$\delta$ Ursæ Min. SP.
6. 23. 4.83			49.24	25.16	35.92			7. 24. 25.25	- 2.26	Castor.
7. 23. 49.18			21.22	57.18	35.96			7. 30. 57.24	- 1.83	Procyon.
7. 30. 21.21			57.15	33.21	36.06			7. 35. 33.18	- 2.24	Pollux.
7. 34. 57.09			21.62	58.70	37.08	2.04	35.39	19. 42. 58.68	- 0.07	$\alpha$ Aquilæ.
19. 42. 21.61			50.30	27.35	37.05			19. 47. 27.37	- 0.08	$\beta$ Aquilæ.
19. 46. 50.29			25.71					20. 51. 2.86		Venus 2 L.
20. 50. 25.77										
23. 6. 54.76			59.81					23. 8. 37.16		$\odot$ 's center.
23. 9. 4.91			16.41					23. 46. 53.82		Mercury 1 L.
23. 46. 16.43										

Error of Collimation = - 1".46.

Level Error = + 4".50



Month and Day.	NAME OF STAR or PLANET, and Circumstances of (Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
Mar. 6	(a) $\gamma$ 1 L.....	33,0	47,1	0,8	15,0	28,9	43,1	0. 58. 57,0		B.
	$\alpha$ Arietis.....	48,7	3,1	17,8	32,2	47,0	1,5	1. 58. 16,1		B.
	$\alpha$ Aquilæ.....	39,0	52,3	6,1	19,7	33,0	46,8	19. 43. 0,3		B.
	$\beta$ Aquilæ.....	7,7	21,2	34,3	48,1	1,7	15,3	19. 47. 28,9		B.
	Venus 2 L.....	38,8	52,4	6,6	20,8	34,7	48,5	20. 56. 3,0		B.
Mar. 7	$\odot$ 1 L.} ..... (waving)	54,1	7,8	21,2	35,1	48,3	2,0	23. 11. 15,2		B.
	$\odot$ 2 L.} ..... (waving)	4,1	18,0	31,1	44,9	58,4	12,0	23. 13. 25,3		B.
	(b) Mercury 1 L.....	18,4	32,0	45,1	59,0	12,7	26,1	23. 53. 39,5		B.
	$\alpha$ Andromedæ.....	41,7	57,1	12,1	27,7	42,9	58,1	0. 0. 13,4		B.
	$\gamma$ 1 L.} ..... (waving)	48,9	3,4	17,2	32,0	46,4	0,9	1. 54. 15,3		B.
	$\alpha$ Arietis.....	46,8	1,4	15,5	30,3	45,0	59,7	1. 58. 14,0		B.
	Aldebaran.....	23,9	57,9	51,7	5,8	19,7	33,7	4. 26. 47,8		B.
Mar. 8	$\alpha$ Andromedæ.....	39,8	55,0	10,2	25,7	40,9	56,2	0. 0. 11,8		B.
	$\alpha$ Arietis.....	44,7	59,0	13,4	28,0	42,7	57,4	1. 58. 12,0		B.
	$\gamma$ 1 L.....	39,8	54,4	9,2	24,2	39,1	54,1	2. 53. 9,0		B.
	$\eta$ Tauri.....	33,7	48,8	3,0	17,9	32,4	47,1	3. 38. 2,0		B.
	Aldebaran.....	22,0	56,0	49,8	4,0	18,0	32,0	4. 26. 45,7		B.
Mar. 9	$\eta$ Tauri.....	31,9	46,6	1,0	16,0	30,7	45,3	3. 38. 0,1		B.
	$\gamma$ 1 L.....	20,3	35,9	51,0	6,5	22,0	37,2	3. 55. 53,0		B.
	Aldebaran..... (Temp. 40°)	20,0	34,1	48,0	2,1	16,0	30,0	4. 26. 43,9		B.
	$\tau$ Tauri.....	12,4	27,0	41,3	55,9	11,0	25,3	4. 32. 39,9		B.
	Rigel..... (blazing)	27,6	41,1	54,7	8,8	22,1	35,7	5. 6. 49,4		B.
	$\beta$ Tauri.....	42,7	58,1	13,1	28,4	44,1	59,1	5. 16. 14,3		B.
	$\delta$ Ursæ Minoris SP...	11.40,3	15.27,2	19.13,4	22.58,2	26.47,7	30.29,3	6. 34. 16,4		B.
	(c) Venus 2 L.....	18,5	32,7	46,4	0,5	14,6	28,9	21. 10. 43,0		B.
Mar. 10	(d) $\odot$ 1 L.....	52,2	6,0	19,2	32,7	46,3	59,8	23. 22. 13,4		B.
	$\odot$ 2 L.....	2,3	15,9	29,0	42,7	56,1	10,0	23. 24. 23,5		B.
	(e) Mercury 2 L.....	49,9	3,7	16,5	30,2	43,8	57,3	0. 13. 11,1		B.
Mar. 11	$\beta$ Tauri.....	39,9	55,0	10,1	25,7	41,0	56,2	5. 16. 11,8		B.
Mar. 12	Aldebaran.....	15,7	29,6	43,3	57,8	11,6	25,3	4. 26. 39,7		B.
Mar. 13	(f) $\odot$ 1 L.....	48,1	1,7	15,0	28,5	42,1	55,5	23. 33. 9,0		B.
	$\odot$ 2 L.....	58,0	11,2	24,5	38,2	52,0	5,3	23. 35. 18,9		B.
	Mercury 1 L.....	59,4	13,0	26,4	40,1	53,7	7,2	0. 31. 20,8		B.
	Aldebaran..... (haze)	13,8	27,7	41,3	55,7	9,8	23,7	4. 26. 37,8		B.
	Rigel.....	21,3	35,0	48,1	2,1	15,8	29,0	5. 6. 42,9		B.
	$\beta$ Tauri.....	36,0	51,4	6,7	22,1	37,2	52,7	5. 16. 8,1		B.
	Castor.....	47,5	3,4	19,0	35,0	50,9	7,0	7. 24. 22,9		B.
	Procyon.....	26,4	40,1	53,2	7,0	20,5	34,1	7. 30. 47,9		B.
	Pollux.....	57,6	12,9	28,1	43,0	58,2	14,0	7. 35. 29,1		B.
	$\phi$ Geminorum.....	8,4	23,9	38,9	54,0	8,9	24,1	7. 43. 39,1		B.
	$\gamma$ 1 L.....	11,1	26,0	40,6	56,0	11,0	26,1	8. 13. 41,0		B.
	$\epsilon$ Cancri.....	5,1	19,0	32,9	47,1	1,7	15,8	8. 35. 29,9		B.
	$\alpha^4$ Cancri.....	14,7	28,6	42,0	55,9	9,8	22,4	8. 49. 37,1		B.
Mar. 16	(g) Mercury 1 L.....	5,8	19,1	32,8	46,6	0,1	13,9	0. 47. 27,2		B.
	Aldebaran.....	9,3	23,9	37,1	51,3	5,8	19,8	4. 26. 33,4		B.
	Rigel.....	17,0	30,8	44,1	57,9	11,7	25,0	5. 6. 38,9		B.
Mar. 19	$\odot$ 1 L..... (cloudy)	.....	.....	.....	.....	26,8	40,1	23. 54. 53,7	- 27,00	B.
	$\odot$ 2 L.....	42,0	55,3	9,0	22,4	36,0	49,5	23. 57. 3,1		B.
	Rigel..... (cloudy)	.....	.....	39,0	52,7	6,1	19,8	5. 6. 33,1	- 13,58	B.
	Castor..... (blazing)	37,7	53,8	9,1	25,4	41,4	59,0	7. 24. 13,0		B.
	Procyon.....	16,9	50,2	43,9	57,3	11,1	24,2	7. 30. 38,1		B.
	Pollux..... (Temp. 60°)	47,3	3,1	18,0	33,2	48,7	4,1	7. 35. 19,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.  
Transit levelled March 10, 2<sup>h</sup>, and March 16, 2<sup>h</sup>.

- (a) Very faint and unsteady: less than two hours after the Sun.  
(b) Unsteady.  
(c) Unsteady and ill-defined.

- (d) Waving and tremulous.  
(e) Hazy, faint, and unsteady.  
(f) Faint from haziness.  
(g) Very unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1843.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
0. 38. 14.99		- 2.09	15.01			2.04	37.43	0. 58. 52.52		♄ 1 L.
1. 57. 52.54			32.38	9.98	37.60			1. 58. 9.97	+ 0.09	α Arietis.
19. 42. 19.60			19.61	58.73	39.12	2.01	37.47	19. 42. 58.73	- 0.10	α Aquile.
19. 46. 48.17			48.17	27.38	39.21			19. 47. 27.30	- 0.11	β Aquile.
20. 55. 20.68			20.62					20. 55. 59.84		Venus 2 L.
23. 10. 34.81			39.79					23. 12. 19.21		☉'s center.
23. 12. 44.83								23. 53. 38.42		Mercury 1 L.
23. 52. 58.97			58.95					0. 0. 7.10	+ 0.68	α Andromedæ.
23. 59. 27.57			27.62	7.11	39.49			1. 54. 11.67		♄ 1 L.
1. 53. 32.01			32.03				39.48	1. 58. 10.05	+ 0.09	α Arietis.
1. 57. 30.38			30.41	9.98	39.57			4. 26. 45.66	- 0.84	Aldebaran.
4. 26. 5.79			5.81	45.67	39.86					
23. 59. 25.76			25.71	7.11	41.40	1.86	41.46	0. 0. 7.17	+ 0.68	α Andromedæ.
1. 57. 28.17			28.20	9.97	41.77			1. 58. 9.81	+ 0.10	α Arietis.
2. 52. 24.25			24.28					2. 53. 5.96		♄ 1 L.
3. 37. 17.85			17.89					3. 37. 59.63	- 0.48	η Tauri.
4. 26. 3.93			3.95	45.66	41.71			4. 26. 45.75	- 0.83	Aldebaran.
3. 37. 15.93			15.99			1.68	43.25	3. 37. 59.49	- 0.47	η Tauri.
3. 55. 6.56			6.60					3. 55. 50.12		♄ 1 L.
4. 26. 2.01	2.04		2.03	45.64	43.61			4. 26. 45.59	- 0.81	Aldebaran.
4. 31. 56.12			56.15					4. 32. 39.72	- 0.86	τ Tauri.
5. 6. 8.49			8.45	52.08	43.63			5. 6. 52.06	- 0.04	Rigel.
5. 15. 28.53			28.60	12.15	43.55			5. 16. 12.22	- 1.22	β Tauri.
6. 22. 58.93	58.46		58.25	41.62	43.37			18. 23. 41.95	+ 13.72	δ Ursæ Min. SP.
21. 10. 0.65			0.59					21. 10. 45.33		Venus 2 L.
23. 21. 32.80			37.76					23. 23. 22.65		☉'s center.
23. 23. 42.78										Mercury 2 L.
0. 12. 30.35			30.34				44.93	0. 13. 15.28		
5. 15. 23.67			23.72	12.11	46.39	1.58	46.04	5. 16. 12.10	- 1.18	β Tauri.
4. 25. 57.57			57.59	45.59	48.00	1.67	47.69	4. 26. 45.59	- 0.76	Aldebaran.
23. 52. 28.56			33.39			1.80	47.67	23. 34. 22.84		☉'s center.
23. 54. 38.30							49.47	0. 31. 29.58		Mercury 1 L.
0. 10. 40.08			40.07					4. 26. 45.51	- 0.75	Aldebaran.
4. 25. 55.09			55.71	45.58	49.87			5. 6. 51.83	- 0.88	Rigel.
5. 6. 2.03			1.98	52.02	50.04			5. 16. 11.98	- 1.11	β Tauri.
5. 15. 22.03			22.06	12.07	50.01			7. 24. 25.16	- 2.15	Castor.
7. 23. 35.10			35.14	25.05	49.91			7. 30. 57.05	- 1.72	Procyon.
7. 30. 7.03			7.02	57.07	50.05			7. 35. 33.35	- 2.10	Pollux.
7. 34. 43.27			43.31	33.10	49.79			7. 43. 43.98	- 2.15	φ Geminorum.
7. 42. 53.90			53.93					8. 13. 46.07		♄ 1 L.
8. 12. 55.97			55.99					8. 35. 37.19	- 2.25	c Cancri
8. 14. 47.36			47.38					8. 49. 46.07	- 2.18	α <sup>2</sup> Cancri
8. 18. 55.93			55.94							
0. 46. 46.50		+ 1.76	46.59			1.56	53.64	0. 47. 40.28		Mercury 1 L.
4. 25. 51.51			51.61	45.53	53.92			4. 26. 4. 54	- 0.70	Aldebaran.
5. 6. 57.92			57.99	51.96	53.97			5. 6. 51.96	- 0.82	Rigel.
23. 54. 13.20			17.92			1.97	56.84	23. 56. 16.64		☉'s center.
23. 56. 23.47							58.81	5. 6. 51.86	- 0.77	Rigel.
5. 6. 52.59			52.63	51.91	59.28			7. 24. 25.15	- 2.04	Castor.
7. 23. 25.04			25.74	54.94	59.31			7. 30. 56.91	- 1.64	Procyon.
7. 29. 57.9			57.48	56.99	59.31			7. 35. 32.91	- 2.3	Pollux.
7. 34. 31.39			31.48	53.00	59.52					

Error of Collimation = 1.46

Level Error = 2.50 From α Aquile March 6 = 2.40 From March 13 = 2.23

Meridian Error from March 16 by Polaris SP March 20 and Polaris March 21, allowing + 0.91 for clock-rate and + 0.05 for change of R.

Month and Day.	NAME OF STAR OR PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
Mar. 20	$\alpha$ Hydræ .....	3,1	16,8	30,2	43,9	57,3	10,9	9. 19. 24,3		B.
	Regulus .....	10,0	23,7	37,2	51,2	5,3	19,1	9. 59. 32,7		B.
	Polaris SP. ....	43.22,5	51.43,3	0. 3,7	8.34,4	16.42,5	13. 25. 9,3	- 4. 10,88		B.
	(a) Venus 2 L. ....	25,7	39,5	53,8	7,6	22. 3. 21,5	- 13,82			B.
	$\alpha$ Andromedæ. ....	19,2	33,3	48,4	4,1	19,1	34,6	23. 59. 50,0		B.
Mar. 21	$\odot$ 1 L. ....	44,7	58,5	12,1	25,7	39,1	52,4	0. 2. 6,3		B.
	$\odot$ 2 L. ....	54,3	8,1	21,2	35,0	48,2	2,0	0. 4. 15,3		B.
	(b) Polaris .....	35. 4,7	43.28,5	.....	.....	.....	.....	1. 25. 12,4	+ 5. 52,86	B.
	$\alpha$ Hydræ .....	1,3	14,9	28,2	42,0	55,5	9,1	9. 19. 22,8		B.
	Regulus .....	8,1	22,0	35,5	49,6	3,1	17,1	9. 59. 31,0		B.
Mar. 23	Venus 2 L. ....	0,5	14,6	28,7	42,5	56,3	9,8	22. 17. 23,5		B.
	$\alpha$ Pegasi .....	56,8	10,9	24,3	38,2	52,1	6,0	22. 56. 19,9		B.
Mar. 24	$\odot$ 1 L. ....	35,2	46,7	0,1	14,0	27,3	40,7	0. 12. 53,9		B.
	$\odot$ 2 L. ....	42,3	56,0	9,2	23,0	36,2	50,0	0. 15. 3,6		B.
	(c) Polaris .....	.....	.....	51.32,5	0. 2,2	8.20,7	16.41,8	1. ....	- 4. 9,22	B.
	(c) Mercury 1 L. ....	.....	.....	19,3	33,2	47,0	0,9	1. 15. 14,2	- 13,70	B.
	Polaris SP. ....	34.56,4	43.14,3	51.59,7	59.57,6	8.29,3	16.38,6	13. 25. 2,3		B.
	Venus 2 L. .... (cloudy)	40,1	53,6	7,8	21,4	35,2	49,1	22. 22. 2,9		B.
Mar. 25	$\odot$ 1 L. ....	9,4	22,7	36,0	49,6	3,2	16,9	0. 16. 30,2		B.
	$\odot$ 2 L. ....	18,2	31,7	45,1	58,9	12,1	25,9	0. 18. 39,2		B.
	Polaris .....	34.57,8	43.20,3	51.32,6	0. 5,8	.....	.....	1. 25. 3,7	+ 5. 0,76	B.
	(d) Mercury 1 L. ....	.....	.....	55,9	9,3	23,1	36,9	1. 16. 50,6	- 13,71	B.
	Castor .....	.....	41,4	57,1	13,2	29,1	45,0	7. 24. 1,1	- 7,94	B.
	Procyon .....	5,1	18,3	31,9	45,2	58,7	12,3	7. 30. 25,9		B.
	Pollux .....	35,3	51,0	5,8	21,2	36,5	51,1	7. 35. 7,2		B.
	Polaris SP. ....	34.48,7	43.11,8	51.36,5	59.52,3	8.19,5	16.36,7	13. 24. 55,8		B.
Apr. 1	Venus 2 L. ....	27,4	40,6	54,3	8,2	21,5	35,8	22. 59. 48,9		B.
Apr. 2	$\odot$ 1 L. ....	.....	12,1	25,2	39,0	52,3	5,9	0. 46. 19,8	- 6,76	B.
	$\odot$ 2 L. .... (cloudy)	7,7	21,1	34,2	48,1	2,0	15,1	0. 48. 29,0		B.
	(e) Polaris .....	35.15,8	.....	.....	0.44,7	9. 2,7	17.25,5	1. ....	- 0. 0,93	B.
	Aldebaran .....	36,1	50,1	4,0	18,2	32,1	46,2	4. 27. 0,1		B.
	Rigel .....	43,9	57,6	10,9	24,7	38,1	51,9	5. 7. 5,4		B.
	$\beta$ Tauri .....	58,8	14,1	29,0	44,7	0,1	15,3	5. 16. 30,7		B.
	Castor .....	9,8	25,9	41,3	57,4	13,3	29,3	7. 24. 45,1		B.
	Procyon .....	49,1	2,8	16,0	29,6	43,2	56,6	7. 31. 10,1		B.
	Pollux .....	19,6	35,0	50,0	5,8	21,0	36,1	7. 35. 51,4		B.
	(f) Venus 2 L. ....	0,3	13,8	27,4	41,2	54,8	8,5	23. 4. 21,6		B.
	(f) $\odot$ 1 L. ....	.....	.....	.....	15,7	29,2	42,4	0. 49. 56,1	- 20,34	B.
	$\odot$ 2 L. .... (cloudy)	44,2	57,9	11,2	25,0	38,7	52,0	0. 52. 5,5		B.
Apr. 3	$\alpha$ Hydræ .....	35,7	49,2	2,9	16,4	30,0	43,4	9. 19. 57,1		B.
	Regulus .....	42,4	56,2	10,2	24,1	37,6	51,4	10. 0. 5,2		B.
	(g) Polaris SP. ....	35.25,7	43.50,7	52.10,6	0.32,2	9. 5,5	17.19,3	13. 25. 34,8		B.
	(h) $\alpha$ Pegasi .....	.....	.....	.....	.....	31,9	45,7	22. 56. 59,1	- 27,79	B.
	Venus 2 L. .... (motion)	32,5	46,3	59,8	13,7	27,2	40,8	23. 8. 54,5		B.
	$\odot$ 1 L. ....	12,0	25,3	38,9	52,9	6,4	19,7	0. 53. 33,4		B.
	$\odot$ 2 L. ....	21,1	34,8	48,1	1,9	15,4	29,0	0. 55. 42,8		B.
	Rigel .....	39,9	53,9	7,2	20,9	34,3	48,1	5. 7. 1,8		B.
	(i) $\beta$ Tauri .....	55,1	.....	25,2	41,0	56,1	11,4	5. 16. ....	+ 3,07	B.
	(k) $\odot$ 1 L. ....	26,8	40,1	53,4	7,2	20,0	.....	1. ....	+ 13,58	B.
Apr. 4	Rigel .....	37,0	50,6	4,1	17,7	31,2	45,0	5. 6. 58,3		B.
	(i) $\beta$ Tauri .....	.....	7,1	22,0	37,9	53,1	8,9	5. 16. ....	+ 0,02	B.
	Regulus .....	37,7	51,2	4,9	19,0	32,4	46,3	10. 0. 0,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.The Transit was levelled March 27, 3<sup>h</sup>, April 2, 2<sup>h</sup>, and April 9, 2<sup>h</sup>.March 31, 2<sup>h</sup>. The clock was put forward 1<sup>m</sup>.

(a) Very cloudy with much motion: not good. (b) Cloudy: wire II doubtful. (c) Very cloudy, and great motion. (d) Badly defined. (e) Cloudy, with very great motion. This observation does not accord with the observations of the following clock-stars. (f) Great unsteadiness. (g) Flaring. This observation agrees with that of Polaris April 2, but not with the observations of the accompanying clock-stars. (h) Faint and unsteady. (i) Very cloudy. (k) Great motion. Wire V doubtful on account of clouds.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at (A).	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
9. 18. 43.79		+ 1.76	43.87	43.31	61.64	2.00	60.84	9. 19. 45.49	- 1.95	$\alpha$ Hydræ.
9. 58. 51.31			51.41	53.06	61.65			9. 59. 53.08	- 2.36	Regulus.
13. 0. 5.07	4.22		6.09	9.75	62.76			1. 1. 8.91	+ 60.14	Polaris SP.
22. 2. 39.80			39.87			1.98	60.79	22. 3. 42.48		Venus 2 L.
23. 59. 4.10			4.19	7.16	62.97			0. 0. 6.96	+ 0.63	$\alpha$ Andromedæ.
0. 1. 25.54							62.77	0. 3. 33.06		$\odot$ 's center.
0. 3. 34.87								1. 1. 8.87	+ 60.19	Polaris.
1. 0. 7.56	8.60		6.02	9.70	63.68			9. 19. 45.59	- 1.94	$\alpha$ Hydræ.
9. 18. 41.97			42.05	43.50	63.45			9. 59. 53.18	- 2.36	Regulus.
9. 58. 49.49			49.59	53.06	63.47					
22. 16. 42.27		+ 1.61	42.35			1.91	67.22	22. 17. 51.34		Venus 2 L.
22. 53. 38.32			38.44	47.49	69.03			22. 56. 47.49	+ 0.27	$\alpha$ Pegasi.
0. 12. 13.70							69.13	0. 14. 27.55		$\odot$ 's center.
0. 14. 22.90			18.40					1. 1. 9.15	+ 60.39	Polaris.
1. 0. 0.08	62.30		59.94	9.50	69.56			1. 15. 42.56		Mercury 1 L.
1. 14. 33.22			33.33					1. 1. 10.46	+ 60.42	Polaris SP.
12. 59. 59.74	57.76		0.29	9.47	69.18			22. 22. 32.39		Venus 2 L.
22. 21. 21.44		+ 2.60	21.59			1.79	69.13			
0. 15. 49.72							70.92	0. 18. 5.32		$\odot$ 's center.
0. 17. 58.73			51.35					1. 1. 10.90	+ 60.46	Polaris.
1. 0. 0.80	63.02		59.21	9.43	70.22			1. 17. 20.62		Mercury 1 L.
1. 16. 9.45			9.61					7. 24. 24.84	- 1.94	Castor.
7. 23. 13.21			13.37	24.84	71.47			7. 30. 56.98	- 1.55	Procyon.
7. 29. 45.34			45.50	56.90	71.40			7. 35. 32.81	- 1.93	Pollux.
7. 31. 21.15			21.32	32.90	71.58			1. 1. 8.47	+ 60.49	Polaris SP.
12. 59. 54.47	52.49		56.58	9.40	72.82					
22. 59. 8.10		+ 1.55	8.18			1.74	24.84	22. 59. 34.69		Venus 2 L.
0. 45. 38.96							26.58	0. 47. 10.32		$\odot$ 's center.
0. 47. 48.17			43.68					1. 1. 3.39	+ 61.30	Polaris.
1. 0. 36.24	38.72		36.74	8.59	31.85			4. 26. 45.15	- 0.46	Aldebaran.
4. 26. 18.12			18.25	45.29	27.04			5. 6. 51.67	- 0.55	Rigel.
5. 6. 24.64			24.72	51.69	26.97			5. 16. 11.76	- 0.79	$\beta$ Tauri.
5. 15. 44.67			44.80	11.72	26.92			7. 24. 24.70	- 1.79	Castor.
7. 23. 57.44			57.58	24.60	27.11			7. 30. 56.86	- 1.43	Procyon.
7. 30. 29.63			29.74	36.78	27.04			7. 35. 32.83	- 1.80	Pollux.
7. 35. 5.56			5.70	32.77	27.07			23. 4. 9.34		Venus 2 L.
23. 3. 41.08			41.16			1.80	26.45			
0. 49. 15.51							28.25	0. 50. 48.64		$\odot$ 's center.
0. 51. 24.93			20.33					9. 19. 45.42	- 1.79	$\alpha$ Hydræ.
9. 19. 16.39			16.47	45.35	28.88			9. 59. 52.99	- 2.36	Regulus.
9. 59. 23.87			23.99	52.96	28.97			1. 1. 3.22	+ 61.20	Polaris SP.
13. 0. 34.11	31.88		34.00	8.69	34.69			22. 56. 48.00	+ 0.08	$\alpha$ Pegasi.
22. 56. 17.78			17.90	47.68	29.78	1.77	28.41	23. 8. 43.74		Venus 2 L.
23. 8. 13.54			13.62							
0. 52. 52.65							30.18	0. 54. 27.61		$\odot$ 's center.
0. 55. 1.87			57.36					5. 6. 51.51	- 0.52	Rigel.
5. 6. 20.87			20.95	51.66	30.71			5. 16. 11.53	- 0.76	$\beta$ Tauri.
5. 15. 40.83			40.96	11.69	30.73					
1. 0. 7.08		1.36	7.01			1.44	33.62	1. 0. 40.69		$\odot$ 1 L.
5. 6. 17.20			17.39	51.64	34.05			5. 6. 51.52	- 0.50	Rigel.
5. 15. 37.82			37.81	11.66	33.85			5. 16. 11.75	- 0.73	$\beta$ Tauri.
9. 59. 18.60			18.75	52.93	34.18			9. 59. 52.97	- 2.23	Regulus.

Error of Collimation = - 1".46.

Level Error = + 2".23. From March 23 = + 2".82. From April 1 = + 2".95. From April 6 = + 2".04.

Meridian Error from March 23 and from Venus March 23, by the two sets of three consecutive transits of Polaris March 24 and 25.

Meridian Error from April 1 by Polaris April 2 and Polaris SP April 3, allowing + 2".85 for clock-rate, and - 0".10 for change of  $\Delta$ .

Meridian Error from April 6 by Polaris SP, Polaris, and Polaris SP April 10 and 11. The observation of Polaris SP April 6 shows that a change of Meridian Error occurred between that day and April 3.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.		II.		III.		IV.		V.		VI.		VII. Wire.			Correction for Wires omitted.	Observer.
		m.	s.	m.	s.	m.	s.	m.	s.	m.	s.	m.	s.	h.	m.	s.		
Apr. 6	$\beta$ Leonis.....	40,1		54,0		8,1		21,9		36,0		50,0		11. 41. 4,0				B.
	(a) Polaris SP.....	35.34,7		43.56,4		52.18,5		0.36,6		9. 6,3		17.22,9		13. 25. 59,4				B.
	$\alpha$ Andromedæ... (cloudy)	.....		2,0		16,9		32,5		47,9		2,9		0. 0. 18,2			- 7,61	B.
Apr. 7	$\odot$ 1 L.....	4,3		18,0		31,4		45,2		58,7		12,2		1. 4. 25,9				B.
	$\odot$ 2 L.....	13,9		27,3		40,9		54,8		8,3		21,9		1. 6. 35,7				B.
Apr. 8	$\epsilon$ Geminorum.....	45,0		0,0		14,8		29,9		44,5		59,1		6. 34. 14,2				B.
	$\eta$ 1 L.....	55,5		11,0		26,3		42,1		57,4		13,1		6. 53. 28,7				B.
	$\iota$ Geminorum.....	26,1		40,9		56,1		11,8		27,0		42,1		7. 15. 57,4				B.
	Castor.....	0,3		16,1		31,4		47,8		3,5		19,7		7. 24. 35,5				B.
	Procyon.....	39,5		53,1		6,2		20,0		33,3		47,1		7. 31. 0,4				B.
	Pollux.....	10,1		25,3		40,5		56,1		11,1		26,7		7. 35. 41,9				B.
Apr. 9	(b) $\odot$ 1 L.....	20,7		34,0		46,9		1,3		15,0		28,4		1. 11. 42,0				B.
	$\odot$ 2 L.....	30,0		43,7		57,1		11,0		24,7		38,1		1. 13. 51,8				B.
	$\iota$ Geminorum.....	24,4		39,3		54,3		9,9		25,3		40,4		7. 15. 55,8				B.
	Castor.....	58,4		14,1		29,9		46,0		2,0		17,9		7. 24. 33,7				B.
	Procyon.....	37,5		51,1		4,4		18,0		31,6		45,1		7. 30. 58,8				B.
	Pollux.....	8,2		23,4		38,3		54,0		9,2		24,8		7. 35. 40,1				B.
	$\eta$ 1 L.....	28,1		43,1		58,0		13,3		28,2		43,4		7. 55. 58,9				B.
	$\theta$ Cancri.....	8,9		22,9		36,8		51,1		5,4		19,5		8. 22. 34,0				B.
	$\delta$ Cancri.....	15,9		30,1		44,2		58,4		12,8		27,1		8. 35. 41,1				B.
	(c) Polaris SP.....	35.29,5		43.52,8		52.13,6		0.28,7		8.57,4		17.14,2		13. 25. 31,5				B.
	$\theta$ Cancri.....	7,4		21,3		35,1		49,4		3,3		18,0		8. 22. 31,8				B.
	(d) $\delta$ Cancri.....	14,1		28,0		42,1		56,7		11,2		25,1		8. 35. 39,0				B.
	$\eta$ 1 L.....	6,1		20,5		35,0		50,0		4,4		19,1		8. 53. 33,9				B.
Apr. 10	$\alpha$ Hydræ.....	24,0		38,0		51,2		5,1		18,4		32,1		9. 19. 46,0				B.
	(e) $\lambda$ Leonis.....	12,9		27,1		41,9		56,9		11,4		26,1		9. 22. 40,8				B.
	14 Leonis.....	17,0		30,9		44,2		58,2		12,0		25,3		9. 32. 39,1				B.
	Regulus.....	31,2		45,0		58,3		12,4		26,2		40,0		9. 59. 53,9				B.
	(c) Polaris SP.....	35.30,2		43.51,8		52.12,5		0.30,7		9. 1,8		17.11,4		13. 25. 33,5				B.
	Venus 2 L.....	7,2		20,6		34,0		47,4		0,6		14,8		23. 40. 28,5				B.
	(f) $\alpha$ Andromedæ.....	40,0		55,4		10,7		26,0		41,1		56,3		0. 0. 11,9				B.
	(a) Polaris.....	35.24,7		43.48,3		.....		0.26,8		8.43,6		17. 9,5		1. 25. 35,8			- 1. 24,68	B.
	(a) $\odot$ 1 L.....	36,5		50,0		3,6		17,3		31,0		44,9		1. 18. 58,3				B.
	$\odot$ 2 L.....	46,9		0,3		13,9		27,6		41,2		54,8		1. 21. 8,3				B.
	Rigel.....	28,9		42,7		55,9		9,6		23,1		36,9		5. 6. 50,4				B.
	$\beta$ Tauri.....	43,6		59,1		14,1		29,7		45,0		0,4		5. 16. 15,5				B.
	$\alpha$ Hydræ.....	22,3		36,0		49,3		3,1		17,0		30,3		9. 19. 44,1				B.
Apr. 11	$\lambda$ Leonis.....	11,0		25,4		40,0		54,9		9,7		24,1		9. 22. 39,0				B.
	14 Leonis.....	15,1		29,2		42,1		56,2		9,9		23,7		9. 32. 37,1				B.
	$\eta$ 1 L.....	6,0		20,0		33,8		48,2		2,7		17,0		9. 46. 31,0				B.
	Regulus.....	29,3		43,2		57,0		11,1		24,8		38,4		9. 59. 52,1				B.
	$\rho$ Leonis.....	2,0		15,7		29,0		43,1		56,9		10,1		10. 24. 24,1				B.
	Polaris SP.....	35.26,3		43.48,5		52.11,8		0.30,3		9. 0,7		17. 7,8		13. 25. 31,4				B.
	$\alpha$ Hydræ.....	21,0		34,9		48,2		1,9		15,4		29,1		9. 19. 42,7				B.
	Regulus.....	28,3		42,1		55,4		9,5		23,3		37,2		9. 59. 51,0				B.
	$\rho$ Leonis.....	0,9		14,3		28,2		41,8		55,3		9,2		10. 24. 22,8				B.
	$\eta$ 1 L.....	25,7		39,7		53,1		7,4		21,1		35,2		10. 35. 49,0				B.
	$\chi$ Leonis.....	23,7		37,1		50,8		4,7		18,1		31,8		10. 56. 45,3				B.
	$\eta$ Leonis.....	41,7		55,1		8,7		22,3		36,1		49,2		11. 9. 2,9				B.
Apr. 12	(g) $\odot$ 2 L.....	5,0		18,9		.....		.....		59,9		13,8		1. 28. 27,1			- 2,77	B.
	$\alpha$ Hydræ.....	19,9		33,8		46,9		0,9		14,2		28,1		9. 19. 41,1				B.
	Regulus.....	27,1		40,9		54,3		8,1		21,9		35,7		9. 59. 43,8				B.
	$\chi$ Leonis.....	22,7		36,2		49,1		3,2		17,0		30,4		10. 56. 11,0				B.
	$\eta$ Leonis.....	40,4		53,9		7,2		21,1		34,2		47,9		11. 9. 1,3				B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.  
 April 15, 2<sup>h</sup>. The Transit was levelled.

(a) Great unsteadiness. (b) Faint on account of haze, and unsteady. (c) Great motion. The seconds of wire II were written down 42,8, and are altered by a consideration of the intervals. (d) Unsatisfactory: wire V was marked 'doubtful.' (e) Unsteady. (f) Faint. (g) Very cloudy and faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
11. 40. 22.01	38.78	- 1.36	21.96	56.26	34.30	1.44	33.62	11. 40. 56.28	- 2.57	$\beta$ Leonis.
13. 0. 30.26			36.64	9.08	32.44			1. 1. 11.04	+ 60.81	Polaris SP.
23. 59. 32.46			32.15	7.35	34.90	1.32	34.90	0. 0. 7.35	+ 0.44	$\alpha$ Andromedæ.
1. 5. 43.10			40.83					1. 5. 24.79		$\odot$ 's center.
1. 5. 54.09										
6. 33. 29.65										
6. 52. 42.01			29.62			1.71	36.26	6. 34. 6.35	1.22	$\epsilon$ Geminorum.
7. 15. 11.63			42.00					6. 53. 18.75		$\gamma$ 1 L.
7. 23. 47.76			11.62					7. 15. 48.40	- 1.55	$\epsilon$ Geminorum.
7. 30. 19.94			47.75	24.58	36.83			7. 24. 24.54	- 1.68	Castor.
7. 34. 55.96			19.86	56.68	36.82			7. 30. 56.65	- 1.33	Procyon.
			55.95	32.66	36.71			7. 35. 32.75	- 1.69	Pollux.
1. 11. 1.18			5.99			1.76	38.09	1. 12. 44.17		$\odot$ 's center.
1. 13. 10.91										
7. 15. 9.92								7. 15. 48.52	- 1.53	$\epsilon$ Geminorum.
7. 23. 46.00								7. 24. 24.61	- 1.66	Castor.
7. 30. 18.07								7. 30. 56.61	- 1.32	Procyon.
7. 34. 54.00								7. 35. 32.62	- 1.68	Pollux.
7. 55. 13.28								7. 55. 51.90		$\gamma$ 1 L.
8. 21. 51.22	32.65		51.19					8. 22. 29.87	- 1.81	$\theta$ Cancri.
8. 34. 58.52			58.49					8. 35. 37.19	- 1.88	$\epsilon$ Cancri.
13. 0. 32.53			29.91	9.46	39.55			1. 1. 8.93	+ 60.43	Polaris SP.
8. 21. 49.48			49.45			1.70	39.78	8. 22. 29.82	- 1.79	$\theta$ Cancri.
8. 34. 56.60			56.57					8. 35. 36.96	- 1.87	$\epsilon$ Cancri.
8. 52. 49.55			49.82					8. 53. 30.23		$\gamma$ 1 L.
9. 19. 4.97	27.43		4.86	45.27	40.41			9. 19. 45.30	- 1.71	$\alpha$ Hydrie.
9. 21. 56.73			56.70					9. 22. 37.14	- 2.23	$\alpha$ Leonis.
9. 31. 58.10			58.04					9. 32. 38.49	- 2.03	$\delta$ Leonis.
9. 59. 12.43			12.38	52.89	40.51			9. 59. 52.86	- 2.19	Regulus.
13. 0. 43.13			30.51	9.50	38.99			1. 1. 11.21	+ 60.39	Polaris SP.
23. 59. 47.59			47.49			1.58	39.99	23. 40. 29.05		Venus 2 L.
23. 59. 25.92			25.91	7.41	41.50			0. 0. 7.48	+ 0.38	$\alpha$ Andromedæ.
1. 0. 26.77			29.42	9.52	40.10		41.57	1. 1. 11.06	+ 60.37	Polaris.
1. 18. 17.37	30.49		22.41					1. 20. 4.07		$\odot$ 's center.
1. 20. 27.57										
5. 6. 9.65								5. 6. 51.45	- 0.43	Rigel.
5. 15. 29.63								5. 16. 11.54	- 0.66	$\beta$ Tauri.
9. 19. 3.16								9. 19. 45.23	- 1.70	$\alpha$ Hydrie.
9. 21. 54.87								9. 22. 37.03	2.21	$\alpha$ Leonis.
9. 31. 56.19								9. 32. 38.33	2.03	$\delta$ Leonis.
9. 45. 48.39			48.34					9. 46. 30.55		$\gamma$ 1 L.
9. 59. 10.84			10.79	52.88	42.09			9. 59. 53.02	- 2.18	Regulus.
10. 23. 42.98			42.92					10. 24. 25.17	2.24	$\rho$ Leonis.
13. 0. 30.97			28.55	9.54	41.19			1. 1. 10.78	+ 60.35	Polaris SP.
9. 19. 1.88			1.78	45.24	43.45	1.24	42.62	9. 19. 45.18	1.68	$\alpha$ Hydrie.
9. 59. 9.55			9.52	52.87	43.35			9. 59. 52.96	- 2.17	Regulus.
10. 23. 41.78			41.74					10. 24. 25.20	2.23	$\rho$ Leonis.
10. 35. 7.22			7.28					10. 35. 50.75		$\gamma$ 1 L.
10. 56. 4.50			4.46					10. 56. 47.94	2.30	$\chi$ Leonis.
11. 8. 22.28			22.22					11. 9. 5.71	2.29	$\eta$ Leonis.
1. 27. 46.17	1.39		46.12	45.23	44.63	1.30	44.11	1. 28. 30.31		$\odot$ 2 L.
9. 19. 0.70								9. 19. 45.21	1.67	$\alpha$ Hydrie.
9. 59. 8.79								9. 59. 52.88	- 2.16	Regulus.
10. 56. 1.23								10. 56. 47.88	2.30	$\chi$ Leonis.
11. 8. 20.85			20.79					11. 9. 5.50	- 2.29	$\eta$ Leonis.

Error of Collimation = - 1.46.

Level Error = + 2".04 From April 12 = + 2".40

Meridian Error from April 13 by the two sets of three consecutive transits of Polaris April 14 and 15, both sets giving the same result

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.		
Apr. 13	1 L. ....	18,1	32,0	45,3	59,3	13,1	26,9	11.22.40,7		B.
	$\beta$ Virginis.....	58,9	12,4	25,7	39,2	52,9	6,1	11.42.19,9		B.
	$\delta$ Virginis.....	22,0	35,9	49,1	2,8	16,2	29,9	11.51.43,4		B.
	(a) Venus 2 L.....	34,3	47,7	1,2	14,7	28,4	42,1	23.53.55,5		B.
	$\alpha$ Andromedæ.....	36,1	51,3	6,2	22,0	37,2	52,2	0.0.7,8		B.
Apr. 14	2 L. ....	45,0	58,8	12,1	25,9	39,9	53,3	1.32.6,9		B.
	Regulus..... (cloudy)	.....	.....	53,1	7,1	20,8	34,5	9.59.48,1	- 13,78	B.
	$\beta$ Virginis.....	57,7	11,1	24,2	38,0	51,7	5,1	11.42.18,3		B.
	$\delta$ Virginis.....	20,9	34,9	47,7	1,4	14,9	28,3	11.51.42,0		B.
	(b) 1 L. ....	57,2	11,1	24,5	38,9	52,7	6,4	12.8.20,7		B.
	$\eta$ Virginis.....	7,1	20,7	34,1	48,0	1,7	15,0	12.25.28,8		B.
	$\gamma^1$ Virginis.....	9,5	23,0	36,1	49,8	3,2	16,9	12.33.30,3		B.
	Polaris SP.....	35.23,5	43.45,7	52.6,3	0.27,4	8.56,8	....	13.25.30,5	+ 2.46,50	B.
	Spica..... (blazing)	21,6	35,3	48,9	2,8	16,3	30,1	13.16.43,9		B.
	Venus 2 L.....	2,6	16,2	29,7	43,3	56,7	10,8	23.58.23,9		B.
	Polaris.....	35.19,7	43.42,2	51.55,5	0.17,6	8.37,4	17.7,2	1.25.23,6		B.
Apr. 15	1 L. ....	14,9	28,3	41,9	56,0	9,7	23,2	1.33.36,7		B.
	2 L. .... (haze)	25,0	38,7	52,1	6,2	19,6	33,3	1.35.47,0		B.
	$\alpha$ Hydræ.....	17,2	30,9	44,3	58,1	11,7	25,2	9.19.38,7		B.
	Regulus.....	24,1	38,0	51,3	5,5	19,2	32,9	9.59.46,9		B.
	$\eta$ Virginis.....	5,9	19,6	33,2	47,0	0,2	13,7	12.25.27,7		B.
	$\gamma^1$ Virginis.....	8,1	21,7	34,9	48,9	2,1	16,1	12.33.29,3		B.
	(c) 1 L. ....	31,0	45,0	58,7	12,5	27,0	41,0	12.53.54,9		B.
	Polaris SP.....	35.22,2	43.43,5	.....	0.24,8	8.55,6	....	13.25.26,7	+ 1.39,70	B.
	53 Virginis.....	6,8	20,9	34,2	48,2	2,3	16,2	13.3.30,1		B.
	Spica.....	20,4	34,2	47,3	1,5	15,1	29,0	13.16.42,3		B.
	$\alpha$ Pegasi.....	18,1	32,1	45,7	0,1	13,8	27,4	22.56.41,3		B.
	(d) Venus 2 L.....	30,7	44,6	58,5	11,9	24,7	38,6	0.2.51,9		B.
	Polaris.....	35.18,7	43.42,2	51.51,8	0.16,5	8.35,7	17.2,6	1.25.22,2		B.
Apr. 16	1 L. ....	54,8	8,9	22,3	36,2	50,0	3,9	1.37.17,4		B.
	2 L. ....	5,6	19,3	32,6	46,5	0,3	14,0	1.39.27,9		B.
	$\alpha$ Hydræ.....	16,3	29,8	43,2	57,1	10,3	23,8	9.19.37,2		B.
	Regulus.....	22,9	36,6	50,0	4,1	18,0	31,8	9.59.45,3		B.
	(e) 53 Virginis.....	.....	.....	.....	46,9	1,1	15,1	13.3.28,9	- 20,95	B.
	Spica.....	19,1	32,9	46,1	59,9	13,9	27,1	13.16.40,7		B.
	(f) 1 L. ....	59,3	13,1	26,9	41,4	55,6	10,0	13.40.24,3		B.
	2 L. ....	7,1	21,0	35,1	49,5	4,0	18,1	13.42.32,3		B.
Apr. 17	$\lambda$ Virginis.....	58,4	12,3	25,9	40,0	53,8	7,7	14.10.21,1		B.
	2 L. ....	19,0	33,7	48,1	3,0	18,0	32,5	14.30.47,1		B.
	$\epsilon$ Bootis.....	26,7	42,1	56,8	12,2	27,3	42,8	14.37.58,2		B.
	$\alpha^1$ Libræ.....	32,3	46,3	0,1	14,3	28,1	42,3	14.41.56,1		B.
	(g) Jupiter 1 L.....	52,7	.....	20,2	.....	48,1	.....	14.55.16,3	+ 0,03	B.
	Jupiter 2 L.....	.....	10,1	.....	37,8	.....	5,8	14.55. ....	- 0,04	B.
	(e) $\alpha$ Andromedæ.....	30,8	45,9	.....	16,8	.....	47,1	0.0.2,3	- 0,05	B.
Apr. 18	Venus 2 L.....	26,8	40,7	53,8	7,5	21,3	34,5	0.11.48,4		B.
	(g) 1 L. ....	16,9	30,9	44,0	57,9	11,7	25,3	1.44.39,0		B.
Apr. 20	2 L. ....	27,1	40,9	54,4	.....	22,3	36,0	1.46.49,9	+ 0,01	B.
	(g) 1 L. ....	39,9	53,4	7,0	21,0	34,7	48,3	1.52.2,2		B.
Apr. 22	2 L. .... (Temp 58°)	50,7	4,2	17,6	31,7	45,3	59,2	1.54.13,1		B.
	Aldebaran.....	8,5	22,6	36,4	50,7	4,8	18,9	4.26.32,7		B.
	(e) Rigel.....	16,1	29,9	43,2	.....	10,7	24,1	5.6.37,9	+ 0,01	B.
	$\beta$ Tauri.....	31,1	46,1	1,7	17,1	32,8	47,4	5.16.2,9		B.
	(e) Polaris SP.....	35.18,4	.....	52.4,3	.....	8.47,7	16.56,5	13.25.23,4	- 3.20,59	B.
	(h) Polaris SP.....	.....	43.36,8	.....	.....	.....	.....	13.25.12,7	- 4.9,09	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.  
 April 24, 2<sup>h</sup>. The Transit was levelled.

- (a) Indistinct and unsteady.  
 (b) Considerable motion.  
 (c) Much motion: wire IV is bad.  
 (d) Very unsteady.

- (e) Cloudy.  
 (f) Clouded and unsteady. The limbs were both full.  
 (g) Much motion.  
 (h) Cloudy and unsteady.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	S.	"	S.	S.	S.	S.	S.	A. M. S.	S.	
11. 21. 59.35		- 1.39	59.28			1.30	44.11	11. 22. 44.00		1 L.
11. 41. 39.30			39.24					11. 42. 23.98	- 2.41	$\beta$ Virginis.
11. 51. 2.75			2.69					11. 51. 47.44	- 2.43	$\delta$ Virginis.
23. 53. 14.84			14.75			1.40	44.11	23. 54. 0.25		Venus 2 L.
23. 59. 21.83			21.85	7.47	45.62			0. 0. 7.36	+ 0.32	$\alpha$ Andromedæ.
1. 31. 25.99			25.95				45.51	1. 32. 11.55		$\odot$ 2 L.
9. 59. 6.94			6.91	52.85	45.94			9. 59. 53.00	- 2.15	Regulus.
11. 41. 38.02			37.96					11. 42. 24.15	- 2.40	$\beta$ Virginis.
11. 51. 1.44			1.38					11. 51. 47.58	- 2.43	$\delta$ Virginis.
12. 7. 38.79			38.70					12. 8. 24.92		1 L.
12. 24. 47.92			47.82					12. 25. 34.05	- 2.38	$\gamma$ Virginis.
12. 32. 49.83			49.75					12. 33. 35.99	- 2.44	$\gamma^1$ Virginis.
13. 0. 28.20	27.03		24.84	9.86	45.02			1. 1. 11.11	+ 60.08	Polaris SP.
13. 16. 2.70			2.60	48.91	46.31			13. 16. 48.88	- 2.47	Spica.
23. 57. 43.31			43.22			1.33	45.52	23. 58. 30.07		Venus 2 L.
1. 0. 20.46	21.84		23.88	9.96	46.08		46.85	1. 1. 10.79	+ 59.93	Polaris.
1. 32. 55.81								1. 34. 47.80		$\odot$ 's center.
1. 35. 5.99			0.86							
9. 18. 58.02			57.92	45.20	47.28			9. 19. 45.29	- 1.64	$\alpha$ Hydre.
9. 59. 5.41			5.38	52.83	47.45			9. 59. 52.78	- 2.13	Regulus.
12. 24. 46.76			46.66					12. 25. 34.20	- 2.39	$\gamma$ Virginis.
12. 32. 48.73			48.65					12. 33. 36.19	- 2.45	$\gamma^1$ Virginis.
12. 53. 12.87			12.77					12. 54. 0.33		1 L.
13. 0. 26.26	25.09		22.90	10.08	47.18			1. 1. 10.47	+ 59.81	Polaris SP.
13. 2. 48.39			48.26					13. 3. 35.83	- 2.46	53 Virginis.
13. 16. 1.40			1.30	48.92	47.62			13. 16. 48.88	- 2.48	Spica.
22. 53. 59.78			59.75	47.93	48.18	1.39	46.77	22. 56. 47.85	- 0.17	$\alpha$ Pegasi.
0. 2. 11.55			11.47				48.16	0. 2. 59.63		Venus 2 L.
1. 0. 18.53	19.91		21.95	10.19	48.24			1. 1. 10.17	+ 59.70	Polaris.
1. 36. 36.22								1. 38. 29.62		$\odot$ 's center.
1. 38. 46.60			41.37							
9. 18. 56.82			56.72	45.19	48.47			9. 19. 45.42	- 1.63	$\alpha$ Hydre.
9. 59. 4.10			4.07	52.82	48.75			9. 59. 52.81	- 2.12	Regulus.
13. 2. 47.05			46.92					13. 3. 35.83	- 2.46	53 Virginis.
13. 15. 59.96			59.86	48.93	49.07			13. 16. 48.79	- 2.49	Spica.
13. 39. 41.51			41.38					13. 40. 30.33		1 L.
13. 41. 49.59			49.46					13. 42. 38.41		2 L.
14. 9. 39.88			39.76			1.52	49.61	14. 10. 30.27	- 2.55	$\lambda$ Virginis.
14. 30. 3.05			2.89					14. 30. 53.42		2 L.
14. 37. 12.30			12.32	2.74	50.42			14. 38. 2.86	- 2.75	$\epsilon$ Bootis.
14. 41. 14.21			14.08	4.90	50.82			14. 42. 4.62	- 2.58	$\alpha^1$ Libræ.
14. 54. 34.35								14. 55. 26.53		Jupiter's center.
14. 54. 37.86			35.98							
23. 59. 16.53			16.55	7.54	50.99			0. 0. 7.68	+ 0.25	$\alpha$ Andromedæ.
0. 11. 7.57			7.50				51.13	0. 11. 58.64		Venus 2 L.
1. 43. 57.96								1. 45. 54.40		$\odot$ 's center.
1. 46. 8.44			3.16							
1. 51. 20.92		- 2.26	26.22			1.58	54.22	1. 53. 20.56		$\odot$ 's center.
1. 53. 31.68										
4. 25. 50.65			50.59	45.13	54.54			4. 26. 45.10	- 0.30	Aldebaran
5. 5. 56.99			56.84	51.46	54.62			5. 6. 51.39	- 0.32	Rigel.
5. 15. 17.02			17.00	11.49	54.49			5. 16. 11.56	- 0.56	$\beta$ Tauri.
13. 0. 21.47			16.88	11.66	54.78			1. 1. 11.96	+ 58.23	Polaris SP.
13. 0. 15.66	14.62		11.07	12.31	61.24	1.72	57.40	1. 1. 9.40	+ 57.58	Polaris SP.

Error of Collimation =  $1''.46$ Level Error =  $+ 2''.40$ . From April 20 =  $+ 2''.33$ .

The determinations of Meridian Error by the five sets of three consecutive transits of Polaris April 22—25, are,  $- 2''.26$ ,  $- 3''.25$ ,  $- 5''.17$ ,  $- 2''.72$ , and  $- 2''.86$ . The first, the mean of the second and third, and the mean of the fourth and fifth, are used respectively from April 20, from Venus April 22, and from Polaris SP April 24.

Month and Day.	NAME OF STAR OR PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Apr. 22	(a) Venus 2 L.....	.....	.....	.....	26.5	40.3	53.7	0.34. 7.3	- 20.28	B.
	(b) Polaris.....	35. 7.8	43.30.3	.....	0.11.7	8.29.2	16.48.5	1. 25. 10.3	- 1. 24.63	B.
Apr. 23	(b) ☉ 1 L.....	47.2	0.8	14.5	28.5	42.3	56.1	2. 3. 10.0		B.
	☉ 2 L.....	58.1	12.0	25.9	39.6	53.7	7.3	2. 5. 21.2		B.
	Aldebaran.....	3.7	17.9	31.4	45.4	59.7	14.1	4. 26. 27.4		B.
	Rigel.....	11.6	25.4	38.8	52.4	6.1	19.6	5. 6. 32.9		B.
	β Tauri.....	25.9	41.3	56.4	11.9	27.2	42.7	5. 15. 58.1		B.
	Polaris SP.....	.....	.....	.....	0.17.8	8.46.0	16.53.8	13. 25. 18.6	- 12. 31.00	B.
	Venus 2 L.....	14.2	27.8	41.3	54.5	8.4	21.6	0. 38. 35.0		B.
	Polaris..... (cloudy)	35. 7.4	43.27.2	51.37.7	.....	.....	.....	1. ....	+ 16. 41.85	B.
Apr. 24	☉ 1 L.....	30.3	44.1	57.9	11.8	25.4	39.5	2. 6. 53.2		B.
	☉ 2 L.....	41.7	55.8	9.3	23.3	37.0	51.0	2. 9. 4.9		B.
	Regulus.....	10.1	23.7	37.1	51.1	5.1	19.0	9. 59. 32.7		B.
	Polaris SP..... (flaring)	.....	43.37.3	51.54.8	0.11.6	8.43.4	16.53.7	13. 25. 18.5	- 4. 10.41	B.
	Arcturus.....	40.1	54.3	8.2	22.9	37.3	51.8	14. 8. 5.9		B.
	(c) ☽ 2 L.....	48.1	3.0	17.3	32.4	47.2	2.0	20. 46. 17.0		B.
	β Aquarii.....	26.5	40.0	53.2	7.1	20.6	34.2	21. 22. 47.8		B.
	α Andromedæ.....	19.1	34.7	49.5	4.9	20.2	35.4	23. 59. 50.7		B.
	Venus 2 L.....	42.3	55.6	8.9	22.5	35.9	49.4	0. 43. 3.3		B.
	Polaris.....	.....	.....	51.35.3	0. 7.6	8.26.7	16.46.4	1. 25. 7.8	- 8. 19.53	B.
Apr. 25	(d) ☉ 1 L.....	13.7	27.5	41.3	55.3	9.7	23.4	2. 10. 37.3		B.
	☉ 2 L.....	25.5	40.1	53.4	7.2	21.0	35.0	2. 12. 49.1		B.
	Aldebaran.....	59.9	14.1	27.9	42.0	56.1	10.0	4. 26. 23.9		B.
	Polaris SP.....	35.13.4	43.37.5	51.55.3	0.13.5	8.43.8	16.53.6	13. 25. 16.8		B.
	Arcturus.....	37.9	52.3	6.8	21.2	35.3	49.8	14. 8. 4.1		B.
	β Aquarii.....	24.3	37.8	51.1	4.9	18.2	31.8	21. 22. 45.4		B.
	(e) ☽ 2 L.....	52.2	7.0	21.0	35.7	50.0	4.1	21. 37. 18.4		B.
Apr. 26	(e) ☽ 2 L.....	57.1	11.1	25.0	39.2	53.0	7.1	22. 27. 21.2		B.
	α Pegasi.....	0.1	14.0	27.7	41.8	55.5	9.8	22. 56. 23.5		B.
	α Andromedæ.....	15.4	30.8	45.8	1.3	16.5	31.9	23. 59. 47.4		B.
	Venus 2 L.....	38.4	52.2	5.6	18.9	32.7	46.3	0. 51. 59.8		B.
Apr. 27	☉ 1 L.....	43.2	57.1	10.6	24.9	38.9	52.4	2. 18. 6.5		B.
	☉ 2 L.....	54.9	8.9	22.4	36.4	50.8	4.4	2. 20. 18.2		B.
	Aldebaran.....	56.1	10.3	23.9	38.2	52.1	6.1	4. 26. 20.2		B.
	(f) ☽ 2 L.....	58.8	12.3	25.9	40.0	54.0	8.0	23. 17. 21.5		B.
	(g) α Andromedæ.....	13.8	28.9	44.1	.....	15.1	29.9	23. 59. 45.0	+ 0.01	B.
	Mercury 2 L.....	18.1	31.6	45.1	58.6	12.3	25.4	0. 52. 39.1		B.
	Venus 2 L.....	7.4	20.8	34.1	47.7	1.6	14.7	0. 56. 28.3		B.
Apr. 28	☉ 1 L.....	28.1	42.1	56.1	10.0	23.9	37.9	2. 21. 51.8		B.
	☉ 2 L.....	40.4	54.2	8.0	22.1	36.0	50.1	2. 24. 4.0		B.
	Aldebaran.....	55.0	8.7	22.1	36.3	50.3	4.5	4. 26. 18.2		B.
	Rigel.....	2.0	15.8	29.1	42.8	56.2	10.1	5. 6. 23.5		B.
	β Tauri.....	17.0	32.0	46.9	2.8	18.0	33.3	5. 15. 48.8		B.
	(h) Venus 2 L.....	35.6	49.2	3.5	16.9	30.5	43.8	1. 0. 57.4		B.
Apr. 29	☉ 1 L.....	13.7	27.6	41.4	56.0	10.0	23.9	2. 25. 37.8		B.
	☉ 2 L.....	26.1	40.0	53.9	8.0	22.0	35.8	2. 27. 50.0		B.
	Aldebaran.....	52.6	6.7	20.1	34.5	48.3	2.8	4. 26. 16.9		B.
	Rigel.....	59.9	13.6	26.9	40.8	54.2	7.9	5. 6. 21.9		B.
	Procyon.....	5.0	18.7	53.0	45.7	59.1	12.8	7. 30. 26.1		B.
	Pollux.....	35.4	50.9	6.0	21.4	36.9	52.0	7. 35. 7.3		B.
	α Andromedæ.....	10.0	25.2	40.2	55.7	11.2	26.2	23. 59. 41.7		B.
Apr. 30	(i) ☉ 1 L.....	1.0	14.9	28.2	42.3	56.2	10.2	2. 29. 24.1		B.
	☉ 2 L.....	13.0	27.0	40.7	55.0	8.9	22.6	2. 31. 36.9		B.
ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG. April 30, 2 <sup>h</sup> . The Transit was levelled.										
(a) Cloudy and unsteady.					(f) Barely visible.					
(b) Very great motion. Much waving of ☉'s 2 L.					(g) Very faint.					
(c) Ragged. (d) Great motion.					(h) Much unsteadiness.					
(e) Ragged limb and unsteady.					(i) Great waving.					

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1849.	NAME OF STAR or PLANET.
0. 33. 26,67 1. 0. 5,34	9,58	- 3,21	26,51 14,29	12,45	58,16	1,72	59,12	0. 34. 25,67 1. 1. 13,48	+ 57,44	Venus 2 L. Polaris.
2. 2. 28,49 2. 4. 39,69 4. 25. 45,66 5. 5. 52,40 5. 15. 11,93 13. 0. 19,30 0. 37. 54,69 1. 0. 5,95	18,26 7,19		33,97 45,56 52,19 11,88 13,21 54,53 11,90	45,12 51,44 11,47 12,60	59,56 59,25 59,59 59,39	1,88	60,78	2. 4. 33,24 4. 26. 45,00 5. 6. 51,67 5. 16. 11,38 1. 1. 13,26 0. 38. 55,36 1. 1. 12,76	- 0,29 - 0,30 - 0,54 + 57,29 + 57,16	☉'s center. Aldebaran. Rigel. β Tauri. Polaris SP. Venus 2 L. Polaris.
2. 6. 11,74 2. 8. 23,28 9. 58. 51,25 13. 0. 16,14 14. 7. 22,93 20. 45. 32,43 21. 22. 7,06 23. 59. 4,93 0. 42. 22,55 1. 0. 5,23	15,10 6,47	- 2,79	17,39 51,13 10,71 22,86 32,18 6,88 4,89 22,41 10,56	52,73 12,87 24,71	61,60 62,16 61,85	1,96	60,71	2. 8. 18,33 9. 59. 52,69 1. 1. 12,51 14. 8. 24,75 20. 46. 34,59 21. 23. 9,33 0. 0. 7,56 0. 43. 25,14 1. 1. 13,31	- 2,03 + 57,02 - 2,73	☉'s center. Regulus. Polaris SP. Arcturus.
2. 9. 55,46 2. 12. 7,32 4. 25. 41,98 13. 0. 16,27 14. 7. 21,05 21. 22. 4,79 21. 36. 35,49	15,23		1,29 41,90 10,84 20,98 4,61 35,27	45,11 13,13 24,72 9,15	63,21 62,29 63,74 64,54	2,00	62,76	2. 12. 4,14 4. 26. 44,93 1. 1. 14,57 14. 8. 24,80 21. 23. 9,15 21. 37. 39,84	- 0,28 + 56,76 - 2,74 - 1,17	☉'s center. Aldebaran. Polaris SP. Arcturus. β Aquarii. ☽ 2 L.
22. 26. 39,10 22. 55. 41,77 23. 59. 1,30 0. 51. 19,13			38,88 41,63 1,21 18,96	48,20 7,74	66,57 66,53	1,85	64,79	22. 27. 45,40 22. 56. 48,19 0. 0. 7,85 0. 52. 25,67	- 0,44 + 0,05	☽ 2 L. α Pegasi. α Andromedæ. Venus 2 L.
2. 17. 24,80 2. 19. 36,57 4. 25. 38,13 23. 16. 40,07 23. 58. 59,47 0. 51. 58,60 0. 55. 47,80			30,54 38,01 39,87 39,38 58,43 47,63	45,11 7,76	67,10 68,38	1,79	66,64	2. 19. 37,36 4. 26. 44,99 23. 17. 48,24 0. 0. 7,81 0. 53. 6,93 0. 56. 56,13	- 0,28 + 0,03	☉'s center. Aldebaran. ☽ 2 L. α Andromedæ. Mercury 2 L. Venus 2 L.
2. 21. 9,98 2. 23. 22,11 4. 25. 36,44 5. 5. 42,78 5. 15. 2,68 1. 0. 16,70		+ 0,19	15,91 36,32 42,57 2,59 16,68	45,11 51,40 11,43	68,79 68,83 68,84	1,81	70,23	2. 23. 24,52 4. 26. 45,08 5. 6. 51,38 5. 16. 11,41 1. 1. 26,99	- 0,28 - 0,26 - 0,50	☉'s center. Aldebaran. Rigel. β Tauri. Venus 2 L.
2. 24. 55,77 2. 27. 7,98 4. 25. 54,56 5. 5. 40,74 7. 29. 45,77 7. 34. 21,41 23. 58. 55,75			1,86 34,56 40,70 45,75 21,42 55,76	45,10 51,40 36,37 32,31 7,81	70,54 70,70 70,62 70,89 72,05	1,77	72,06	2. 27. 12,27 4. 26. 45,12 5. 6. 51,31 7. 30. 56,54 7. 35. 32,22 0. 0. 7,82	- 0,27 - 0,26 - 1,02 - 1,34 - 0,02	☉'s center. Aldebaran. Rigel. Procyon. Pollux. α Andromedæ.
2. 28. 42,41 2. 30. 54,87			46,63					2. 31. 0,87		☉'s center.

Error of Collimation = - 1",46.

Level Error = + 2",33. From April 26 = + 1",54

Meridian Error from Venus April 28 by Polaris SP, Polaris, and Polaris SP May 1 and 2.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Apr. 30	Rigel.....	58,0	11,8	25,3	39,1	52,7	6,4	5. 6. 20,1		B.
	$\beta$ Tauri..... (cloudy)	.....	.....	43,5	59,0	14,2	29,2	5. 15. 44,7	- 15,27	B.
	(a) Venus 2 L.....	.....	.....	2,4	16,3	29,8	43,7	1. 9. 56,5	- 13,54	B.
May 1	(b) $\odot$ 1 L.....	47,2	1,6	15,2	29,5	43,2	57,1	2. 33. 11,3		B.
	$\odot$ 2 L.....	59,9	13,9	27,6	42,0	56,1	10,0	2. 35. 24,1		B.
	Aldebaran.....	48,9	3,2	16,8	31,0	45,1	59,1	4. 26. 13,0		B.
	Rigel.....	56,7	10,3	23,9	37,3	51,1	5,0	5. 6. 18,2		B.
	$\beta$ Tauri.....	11,3	26,7	42,1	57,2	12,7	27,9	5. 15. 43,2		B.
	(c) Polaris SP.....	34.52,7	43.17,2	51.34,5	59.57,8	8.24,4	16.33,5	13. 25. 0,6		B.
	Polaris.....	34.59,2	43.22,7	51.33,5	59.59,7	8.21,4	16.39,6	1. 24. 59,3		B.
	Venus 2 L.....	5,7	19,6	32,7	46,4	0,3	13,8	1. 14. 27,6		B.
May 2	$\odot$ 1 L. }..... (waving)	35,1	49,1	3,0	17,2	31,1	45,2	2. 36. 59,0		B.
	$\odot$ 2 L. }	47,9	2,0	15,5	30,0	43,8	57,8	2. 39. 11,8		B.
	Rigel.....	55,1	8,7	22,1	36,0	49,3	3,0	5. 6. 16,5		B.
	$\beta$ Tauri.....	10,1	25,1	40,0	55,9	11,2	26,1	5. 15. 41,7		B.
	Procyon.....	59,8	13,8	26,6	40,4	54,1	7,6	7. 30. 21,0		B.
	Pollux.....	30,4	45,9	0,9	16,7	31,8	47,0	7. 35. 2,2		B.
	Polaris SP.....	34.56,3	43.19,6	51.35,4	59.56,7	8.27,6	16.37,5	13. 24. 57,3		B.
May 3	$\alpha$ Andromedæ.....	3,8	19,1	33,7	49,2	4,6	19,9	23. 59. 34,9		B.
	(d) Mercury 2 L.....	0,4	13,7	27,3	40,9	54,3	8,1	1. 9. 21,3		B.
	(e) Venus 2 L.....	.....	.....	34,9	48,9	2,5	15,8	1. 23. 29,4	- 13,58	B.
May 4	(e) $\odot$ 1 L. }..... (Temp. 59°)	12,1	25,8	39,8	54,1	8,2	22,1	2. 44. 36,2		B.
	$\odot$ 2 L. }	25,1	39,2	52,9	7,1	21,2	35,0	2. 46. 49,1		B.
	Aldebaran.....	43,9	58,1	12,1	26,0	40,1	54,1	4. 26. 8,3		B.
	$\beta$ Tauri..... (cloudy)	7,0	22,2	37,4	52,9	8,2	.....	5. 15. ....	+ 15,31	B.
	$\gamma$ 1 L.....	59,6	15,3	30,8	46,6	2,5	18,0	5. 17. 33,9		B.
	$\alpha$ Orionis.....	32,0	45,7	59,0	12,7	26,1	39,9	5. 45. 53,4		B.
May 5	Procyon.....	55,1	8,8	22,1	35,9	49,1	3,0	7. 30. 16,3		B.
	Pollux.....	25,9	41,2	56,3	11,8	26,9	42,1	7. 34. 57,4		B.
May 6	(f) Castor.....	14,7	30,7	46,0	2,4	18,1	34,1	7. 23. 50,0		B.
	(g) Procyon.....	53,8	7,1	20,8	34,7	.....	.....	7. 29. ....	+ 20,30	B.
	(h) $\gamma$ 1 L.....	57,1	12,5	27,2	43,0	58,1	13,3	7. 33. 28,6		B.
May 7	(f) Castor.....	13,2	29,2	45,0	0,8	17,1	32,8	7. 23. 48,9		B.
	(i) Procyon.....	52,3	6,1	19,5	33,5	46,8	0,5	7. 30. 13,9		B.
	(f) Pollux.....	23,2	38,3	53,3	9,1	24,2	39,8	7. 34. 55,2		B.
May 13	(k) $\theta$ Virginis.....	30,1	43,7	57,2	11,1	24,4	37,4	13. 0. 51,0		B.
	Spica..... (flaring)	36,0	49,3	3,2	17,1	30,9	44,1	13. 15. 58,1		B.
	$\gamma$ 1 L.....	50,9	4,9	19,0	33,3	48,0	2,0	13. 24. 16,0		B.
	$\alpha$ Virginis.....	59,2	13,9	28,1	42,0	56,0	10,0	13. 40. 24,0		B.
	$\kappa$ Virginis.....	11,8	25,1	38,9	52,2	6,7	20,0	14. 3. 33,4		B.
	(l) Arcturus.....	9,3	23,6	38,1	52,2	6,9	21,0	14. 7. 35,1		B.
	$\epsilon$ Bootis.....	44,7	59,9	15,0	30,1	45,7	0,8	14. 37. 16,1		B.
	$\alpha^2$ Libræ.....	50,9	5,0	19,1	32,7	47,1	0,8	14. 41. 15,1		B.
May 14	$\odot$ 2 L..... (cloudy)	6,2	20,1	34,7	49,0	3,9	17,1	3. 25. 31,3		B.
	Polaris SP.....	.....	43.33,7	51.45,5	0.13,2	8.37,8	.....	13. 25. 17,6	- 1. 39,53	B.
	Spica.....	34,1	48,1	2,0	15,3	29,1	42,7	13. 15. 56,2		B.
	$\alpha$ Virginis.....	10,1	24,0	37,9	51,1	5,1	18,9	14. 3. 32,2		B.
	Arcturus.....	8,3	22,1	36,3	51,2	6,0	19,3	14. 7. 34,1		B.
	$\gamma$ 1 L.....	6,9	21,0	35,7	50,3	5,1	19,4	14. 11. 34,0		B.
	$\epsilon$ Bootis.....	43,2	58,4	13,9	29,1	44,3	59,1	14. 37. 14,7		B.
	(g) Jupiter 1 L.....	53,2	.....	21,0	.....	49,1	.....	14. 41. 16,8	- 0,03	B.
	Jupiter 2 L.....	.....	10,6	.....	38,5	.....	6,3	14. 40. ....	+ 0,04	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

From May 13..... WEST. .... GFEDCBA.

The Transit was levelled May 7, 2<sup>h</sup>, and May 7, 6<sup>h</sup>, just before the reversion. The Transit was reversed May 7, 6<sup>h</sup>. Immediately after, it was levelled, but the result is not used. It was levelled again May 14, 2<sup>h</sup>.

(a) Very cloudy and badly defined. (b) A difficult transit. (c) Enormous motion. (d) Indistinct. (e) Very great motion. (f) Through clouds, very faint. (g) Very cloudy. (h) Cloudy and unsteady. (i) Very bad: faint and cloudy. (k) Hurried. (l) An unusually large disk.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
5. 5. 39.06 5. 14. 38.85 1. 9. 16.20		+ 0.19	39.02 58.86 16.18	51.39 11.41	72.37 72.55	1.77 1.62	72.06 73.71	5. 6. 51.46 5. 16. 11.31 1. 10. 29.97	- 0.25 - 0.48	Rigel. β Tauri. Venus 2 L.
2. 32. 29.30 2. 34. 41.94 4. 25. 31.01 5. 5. 37.50 5. 14. 57.30 12. 59. 57.24 0. 59. 59.34 1. 13. 46.59	57.72 59.00		35.61 31.01 37.46 57.31 58.02 58.72 46.57	45.10 51.39 11.41 15.30 15.57	74.09 73.93 74.10 77.28 76.85			2. 34. 49.49 4. 26. 45.02 5. 6. 51.51 5. 16. 11.37 1. 1. 12.61 1. 1. 14.11 1. 15. 1.97	- 0.27 - 0.25 - 0.48 + 54.59 + 54.32	☉'s center. Aldebaran. Rigel. β Tauri. Polaris SP. Polaris. Venus 2 L.
2. 36. 17.10 2. 38. 29.82 5. 5. 35.81 5. 14. 55.73 7. 29. 40.47 7. 34. 16.42 12. 59. 58.63	59.11		23.45 35.77 55.74 40.45 16.43 59.41	51.38 11.40 56.34 32.27 15.85	75.61 75.66 75.89 75.84 76.44			2. 38. 38.94 5. 6. 51.48 5. 16. 11.41 7. 30. 56.27 7. 35. 32.26 1. 1. 15.60	- 0.24 - 0.47 - 0.99 - 1.50 + 54.04	☉'s center. Rigel. β Tauri. Procyon. Pollux. Polaris SP.
23. 58. 49.32 1. 8. 40.85 1. 22. 48.72			49.30 40.81 48.69	7.91	78.61	1.61	78.43	0. 0. 7.73 1. 9. 59.31 1. 24. 7.21	- 0.12	α Andromedæ. Mercury 2 L. Venus 2 L.
2. 43. 54.04 2. 46. 7.09 4. 25. 26.09 5. 14. 52.85 5. 16. 46.67 5. 45. 12.68			0.54 26.06 52.83 46.65 12.65	45.10 11.40 31.21	79.04 78.57 78.56			2. 46. 19.15 4. 26. 44.79 5. 16. 11.61 5. 18. 5.43 5. 46. 31.47	- 0.27 - 0.47 - 0.51	☉'s center. Aldebaran. β Tauri. γ 1 L. α Orionis.
7. 29. 35.76 7. 34. 11.65			35.72 11.63	56.30 32.23	80.58 80.60	1.49	80.12	7. 30. 56.31 7. 35. 32.22	- 0.95 - 1.26	Procyon. Pollux.
7. 23. 2.28 7. 29. 34.40 7. 32. 42.83			2.26 34.36 42.81	24.13 56.29	81.87 81.93	1.30	81.50	7. 24. 24.16 7. 30. 56.27 7. 34. 4.72	- 1.23 - 0.94	Castor. Procyon. γ 1 L.
7. 23. 1.00 7. 29. 33.23 7. 34. 9.02			0.98 33.19 9.00	24.12 56.28 32.21	83.14 83.09 83.21	1.25	82.76	7. 24. 24.12 7. 30. 56.34 7. 35. 32.15	- 1.22 - 0.93 - 1.24	Castor. Procyon. Pollux.
13. 0. 10.70 13. 15. 16.96 13. 23. 33.44 13. 39. 41.88 14. 2. 52.58 14. 6. 52.31 14. 36. 50.22 14. 40. 32.96		- 8.19	10.40 16.64 33.08 41.50 52.26 52.23 30.33 32.50	48.99	92.35	1.42	91.68	13. 1. 42.85 13. 16. 49.10 13. 25. 5.55 13. 41. 13.99 14. 4. 24.77 14. 8. 24.74 14. 38. 2.88 14. 42. 5.15	- 2.51 - 2.55 - 2.65 - 2.72 - 2.81 - 2.95 - 2.85	θ Virginie Spica. γ 1 L. α Virginie. Arcturus. β Bootis. α' Libræ.
3. 24. 48.90 13. 0. 14.03 13. 15. 15.36 14. 2. 51.33 14. 6. 51.04 14. 10. 50.34 14. 36. 28.96 14. 40. 34.99 14. 40. 38.51	6.49		48.81 53.62 15.04 51.01 50.96 49.94 28.97 36.39	21.84 48.99 24.79 2.94	88.22 93.95 93.83 93.97	1.48	93.06	3. 26. 22.08 1. 1. 27.48 13. 16. 48.92 14. 4. 24.95 14. 8. 24.89 14. 12. 23.87 14. 38. 2.93 14. 42. 10.35	+ 48.05 - 2.55 - 2.71 - 2.81 - 2.95	☉ 2 L. Polaris SP. Spica. α Virginie. Arcturus. γ 1 L. β Bootis. Jupiter's center.

Error of Collimation = -1".46. From May 13 = -1".40, (by the reversion May 7).

Level Error = -1".54. From May 3 = -1".16, the mean from two levellings. From May 13 = -2".22.

Meridian Error from May 13, by Polaris SP, Polaris, and Polaris SP May 19 and 20.

The observation of Polaris SP May 14 compared with Polaris May 19, (allowing + 8".52 for clock-rate, and - 3".64 for change of  $\Delta t$ ), gives - 8".75 for Meridian Error, which differs little from the adopted value. For an account of the cause of the great change of Meridian Error at the reversion, see the Introduction.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	
May 15	Arcturus.....	6,2	20,9	35,1	49,3	4,0	18,2	14. 7. 32,1		B.
	ε Bootis.....	41,8	57,1	11,9	27,5	42,8	57,9	14. 37. 13,0		B.
	Jupiter 1 L.....	22,9	.....	50,9	.....	18,7	.....	14. 40. 46,1	- 0,03	B.
	Jupiter 2 L.....	.....	40,2	.....	8,0	.....	35,8	14. 40. ....	+ 0,04	B.
	(a) Venus 2 L.....	15,4	29,5	43,8	57,3	11,5	24,7	2. 19. ....	+ 6,90	B.
May 16	⊙ 1 L.}..... (cloudy)	.....	.....	11,0	25,1	39,7	53,8	3. 32. 8,1	- 14,29	B.
	⊙ 2 L.}..... (cloudy)	57,0	11,2	25,4	39,9	54,2	8,4	3. 34. 22,8		B.
	α Hydræ.....	27,7	40,9	54,6	8,1	22,0	35,1	9. 19. 49,0		B.
	Regulus.....	34,0	47,9	1,9	15,9	30,1	43,3	9. 59. 57,0		B.
	α Coronæ Borealis.....	35,1	50,2	5,6	20,9	36,0	51,0	15. 28. 6,1		B.
	κ Libræ.....	28,1	42,1	56,0	10,7	25,1	39,1	15. 32. 53,1		B.
	α Serpentis.....	8,9	22,1	35,9	49,1	3,1	16,1	15. 36. 30,1		B.
	π Scorpii.....	52,7	8,0	22,2	37,3	52,4	7,1	15. 49. 22,1		B.
	(b) δ 2 L.....	39,2	55,0	10,1	25,3	41,0	56,1	15. 56. 12,0		B.
	σ Scorpii.....	10,1	24,7	40,1	54,7	9,9	24,1	16. 11. 39,1		B.
	Antares..... (flaming)	18,1	33,0	48,0	2,9	17,9	32,8	16. 19. 47,9		B.
May 19	(c) Polaris SP.....	36. 2,7	44. 24,4	52. 38,3	1. 1,8	9. 26,6	17. 44,8	13. 26. 8,7		B.
	(d) Arcturus.....	0,2	14,9	29,1	43,2	58,1	12,1	14. 8. 26,2		B.
	ε Bootis.....	35,4	51,0	6,1	21,1	36,9	52,0	14. 38. 7,0		B.
	Polaris..... (cloudy)	.....	.....	52. 6,8	0. 26,7	8. 53,3	.....	1. ....	+ 0. 1,96	B.
May 20	Polaris SP..... (cloudy)	.....	.....	.....	.....	9. 26,4	17. 41,8	13. 26. 4,7	- 16. 40,21	B.
	Arcturus.....	59,1	13,2	27,2	41,6	56,3	10,2	14. 8. 24,5		B.
	ε Bootis.....	34,1	49,2	4,6	20,1	35,2	50,2	14. 38. 5,1		B.
	δ Ophiuchi.....	37,5	50,8	4,3	17,9	31,8	44,5	16. 5. 58,1		B.
	i Scorpii.....	5,4	20,2	34,9	50,1	5,2	19,7	16. 20. 34,2		B.
May 21	⊙ 1 L.}..... (cloud)	.....	.....	57,1	11,3	26,1	40,3	3. 51. 54,4	- 14,39	B.
	⊙ 2 L.}..... (cloud)	44,0	58,1	12,9	27,0	42,0	55,9	3. 54. 10,1		B.
May 26	(e) δ 2 L.....	29,2	43,0	57,0	10,8	25,0	38,3	0. 35. 52,1		B.
	α Arietis..... (cloud)	.....	48,0	2,6	17,0	31,7	46,1	1. 58. 0,8	- 7,29	B.
	α Ceti.....	22,1	35,3	48,0	2,3	16,1	29,3	2. 53. 43,0		B.
	(f) Mercury 2 L.....	24,7	39,1	53,3	7,4	21,3	35,3	3. 11. 49,2		B.
May 27	(g) ⊙ 1 L.....	29,7	44,1	58,3	12,9	27,7	.....	4. 15. ....	+ 14,46	B.
	⊙ 2 L.....	46,0	0,3	.....	.....	44,0	.....	4. 17. ....	+ 19,25	B.
	Rigel.....	16,9	30,4	44,0	57,8	11,4	24,9	5. 6. 38,4		B.
	(h) δ 2 L.....	53,9	8,2	22,5	36,1	50,3	4,1	1. 30. 18,4		B.
	α Arietis.....	31,7	46,1	1,0	15,5	30,0	44,7	1. 57. 59,1		B.
	(i) Venus 2 L.....	31,2	.....	59,3	13,6	.....	.....	3. 16. ....	+ 18,86	B.
	(l) Mercury 2 L.....	45,7	.....	.....	.....	.....	56,4	3. 19. 10,7	- 9,37	B.
May 28	(i) ⊙ 1 L.....	.....	.....	.....	.....	30,0	44,4	4. 19. 58,8	- 29,04	B.
	⊙ 2 L.....	48,1	3,0	17,1	31,4	46,2	0,7	4. 22. 15,1		B.
	Rigel.....	15,2	29,0	42,7	56,2	10,1	23,6	5. 6. 37,1		B.
	Pollux.....	50,8	6,1	21,2	36,7	52,0	7,1	7. 35. 22,4		B.
	(j) α Arietis.....	.....	.....	59,3	.....	29,0	43,1	1. 57. 57,7	- 18,24	B.
	(i) Venus 2 L.....	24,2	38,3	52,4	6,7	21,3	35,1	3. 21. 49,3		B.
	(i) Mercury 2 L.....	19,1	33,2	47,2	1,4	16,2	29,8	3. 26. 44,1		B.
May 29	(i) ⊙ 1 L.}..... (Temp 60°)	33,2	48,3	2,9	17,8	32,1	.....	4. 23. ....	+ 14,49	B.
	⊙ 2 L.}..... (Temp 60°)	50,1	5,5	19,9	34,1	49,0	3,1	4. 26. 18,0		B.
	Pollux.....	49,0	4,5	19,8	35,0	50,6	5,5	7. 35. 21,0		B.
	(k) α Hydræ.....	7,6	20,9	34,6	48,2	2,0	15,2	9. 19. 29,0		B.
	Regulus.....	13,9	27,8	41,1	55,2	9,3	22,9	9. 59. 36,8		B.
	Polaris SP.....	35. 54,2	44. 16,8	52. 27,6	0. 56,3	9. 12,2	17. 37,6	13. 25. 54,7		B.
	(i) Venus 2 L.....	18,7	33,3	47,4	1,4	15,9	29,5	3. 26. 43,9		B.
	(i) Mercury 2 L.....	4,1	18,2	.....	47,4	1,3	15,1	3. 34. 29,3	- 2,38	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

May 15, 23<sup>h</sup>. The clock was put forward 1<sup>m</sup>.The Transit was levelled May 21, 3<sup>h</sup>, and May 28, 2<sup>h</sup>.

(a) Cloud came over; wire VI doubtful. (b) Undulating. (c) Very tremulous. (d) Flashing.  
 (e) Very ragged. (f) Great motion. (g) Obscured by clouds. (h) Ragged and unsteady.  
 (i) These observations were all much affected by clouds and atmospheric vibration. (k) Thought to be very bad.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	A.	"	A.	A.	A.	A.	A.	A. M. S.	A.	
14. 6. 49.40		- 8.19	49.32	24.80	95.48	1.61	94.52	14. 8. 24.78	- 2.82	Arcturus.
14. 36. 27.43			27.44	2.94	95.50			14. 38. 2.94	- 2.95	ε Bootis.
14. 40. 4.62			5.97					14. 41. 41.47		Jupiter's center.
14. 40. 8.04			57.13			1.64	36.18	2. 19. 33.47		Venus 2 L.
2. 18. 57.27										
3. 31. 25.25			32.46					3. 33. 8.88		☉'s center.
3. 33. 39.85			7.90	44.81	36.91			9. 19. 44.72	- 1.25	α Hydrae.
9. 19. 8.20			15.59	52.47	36.88			9. 59. 52.45	- 1.77	Regulus.
9. 59. 15.73			20.70	57.85	37.15			15. 27. 57.94	- 2.92	α Coronae Bor.
15. 27. 20.70			10.20					15. 32. 47.44	- 3.02	κ Libræ.
15. 32. 10.60			49.14	26.39	37.25			15. 36. 26.39	- 2.86	α Serpentis.
15. 35. 49.33			56.94					15. 49. 14.20	- 3.16	π Scorpil.
15. 48. 37.40			25.07					15. 56. 2.34		☿ 2 L.
15. 55. 25.53			54.22					16. 11. 31.51	- 3.19	σ Scorpil.
16. 10. 54.67			2.48	39.74	37.26			16. 19. 39.78	- 3.20	Antares.
16. 19. 2.94										
13. 1. 3.90	59.80		46.93	25.17	38.24	1.61	40.68	1. 1. 28.48	+ 44.72	Polaris SP.
14. 7. 43.40			43.22	24.80	41.58			14. 8. 24.84	- 2.82	Arcturus.
14. 57. 21.35			21.24	2.95	41.71			14. 38. 2.90	- 2.96	ε Bootis.
1. 0. 30.89	55.02		47.03	25.48	38.45	1.64	42.31	1. 1. 29.41	+ 44.41	Polaris.
13. 1. 4.09	59.99		47.12	25.79	38.67			1. 1. 30.32	+ 44.10	Polaris SP.
14. 7. 41.73			41.55	24.80	43.25			14. 8. 24.82	- 2.82	Arcturus.
14. 57. 19.78			19.07	2.95	43.28			14. 38. 2.98	- 2.96	ε Bootis.
16. 5. 17.85			17.61	1.07	43.46			16. 6. 1.02	- 2.95	δ Ophiuchi.
16. 19. 49.95			49.47					16. 20. 32.89	- 3.25	ι Scorpil.
3. 51. 11.45			19.12				43.95	3. 53. 3.33		☉'s center.
3. 53. 27.15										
0. 55. 10.77		- 9.46	10.47			1.47	53.70	0. 36. 4.21		☿ 2 L.
1. 57. 17.08			16.92	10.56	53.64			1. 58. 10.74	- 0.49	α Arietis.
2. 53. 2.30			1.97	55.90	53.93			2. 53. 55.85	- 0.45	α Ceti.
3. 11. 7.19			6.97					3. 12. 0.87		Mercury 2 L.
4. 15. 13.00			21.00					4. 17. 14.96		☉'s center.
4. 17. 29.35			57.27	51.39	54.12			5. 6. 51.28	- 0.25	Rigel.
5. 5. 57.69			35.96			1.43	55.16	1. 30. 31.21		☿ 2 L.
1. 29. 36.22			15.28	10.59	55.31			1. 58. 10.55	- 0.52	α Arietis.
1. 57. 15.44			13.34					3. 17. 8.70		Venus 2 L.
3. 16. 13.56			28.01					3. 19. 23.37		Mercury 2 L.
3. 18. 28.23										
4. 19. 15.36			23.34					4. 21. 18.76		☉'s center.
4. 21. 31.65			55.85	51.39	55.54			5. 6. 51.31	- 0.25	Rigel.
5. 5. 56.27			36.54	52.03	55.49			7. 35. 32.15	- 1.06	Pollux.
7. 34. 36.62			13.87	10.61	56.74	1.48	56.54	1. 58. 10.53	- 0.54	α Arietis.
1. 57. 14.03			6.54					3. 22. 3.29		Venus 2 L.
3. 21. 6.76			1.36					3. 26. 58.11		Mercury 2 L.
3. 26. 1.57										
4. 23. 17.35			25.61					4. 25. 22.42		☉'s center.
4. 25. 34.31			34.98	52.03	57.03			7. 35. 31.99	- 1.06	Pollux.
7. 34. 35.06			47.80	44.67	56.87			9. 19. 44.91	- 1.11	α Hydrae.
9. 18. 48.22			55.03	52.33	57.30			9. 59. 52.18	- 1.63	Regulus.
9. 58. 55.29			33.71	31.59	57.88			1. 1. 31.05	+ 58.30	Polaris SP.
13. 0. 54.20	48.58		1.23			1.66	58.12	3. 26. 59.59		Venus 2 L.
3. 26. 1.44			46.64					3. 34. 45.01		Mercury 2 L.
3. 33. 46.85										

Error of Collimation = + 1".40.

Level Error = + 2".22. From May 19 = + 0".43. From May 26 = + 1".22.

Meridian Error from May 26, by Polaris SP May 29 and Polaris May 31, allowing + 5".95 for clock-rate, and - 2".02 for change of AL.



Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s. s.		
May 30	(a) ☉ 1 L.....	37,1	51,7	6,1	20,7	35,3	49,9	4. 28. 4,1		B.
	☉ 2 L.....	54,0	.....	.....	.....	52,1	.....	4. 30. 21,1	- 4,89	B.
	Procyon..... (cloudy)	.....	.....	44,1	57,9	11,8	25,0	7. 30. 38,3	- 13,53	B.
	Pollux.....	47,7	3,0	18,1	33,3	48,9	4,0	7. 35. 19,2		B.
	Regulus..... (Temp. 60°)	12,2	26,0	39,8	53,7	7,8	21,1	9. 59. 35,0		B.
May 31	Polaris.....	35.10,6	43.33,2	51.52,3	0.11,6	8.38,5	16.49,5	1. 25. 9,7		B.
	α Arietis..... (haze)	.....	.....	54,7	9,2	24,1	38,3	1. 57. 53,0	- 14,58	B.
	(b) Venus 2 L.....	11,2	25,4	39,7	53,8	8,4	22,2	3. 36. 36,7		B.
	(b) Mercury 2 L.....	9,9	24,4	38,6	53,4	7,6	21,9	3. 50. 36,4		B.
June 1	☉ 1 L..... (Temp. 64°)	44,0	58,4	13,1	27,7	42,3	56,9	4. 36. 11,3		B.
	☉ 2 L.....	1,0	15,4	30,0	44,5	59,3	14,0	4. 38. 28,2		B.
	Rigel.....	9,1	22,7	36,1	49,8	3,7	17,1	5. 6. 30,6		B.
	Pollux.....	44,2	59,7	14,9	30,1	45,7	0,7	7. 36. 16,1		B.
	α Hydræ..... (Temp. 70°)	.....	15,9	29,1	42,7	56,5	9,9	9. 20. 23,5	- 6,79	B.
	Regulus.....	9,0	22,8	36,7	50,4	4,9	18,1	10. 0. 31,9		B.
	Polaris SP.....	.....	45.21,8	53.30,5	1.59,7	10.16,3	18.35,4	13. 26. 56,4	- 4. 9,53	B.
	(c) Venus 2 L..... (Temp. 50°)	.....	.....	.....	51,2	5,5	19,6	3. 47. 33,9	- 21,43	B.
June 3	(d) ☉ 1 L..... (Temp. 50°)	53,1	7,8	22,2	36,9	51,6	6,0	4. 45. ....	+ 7,28	B.
	☉ 2 L.....	.....	.....	.....	54,1	8,4	22,9	4. 47. 38,0	- 21,89	B.
	(d) Rigel.....	.....	19,7	33,3	46,9	1,1	.....	5. 7. ....	+ 6,77	B.
	Procyon.....	11,1	24,7	38,0	51,8	5,4	18,8	7. 31. 32,1		B.
June 5	(e) Venus 2 L.....	11,8	26,4	40,7	54,8	9,7	23,9	4. 2. 38,5		B.
	(f) Mercury 2 L.....	44,4	59,2	13,6	28,4	43,2	57,3	4. 35. 12,2		B.
June 6	☉ 1 L.....	9,7	24,1	38,7	53,2	8,2	22,6	4. 57. 37,3		B.
	☉ 2 L.....	27,0	41,7	56,2	11,0	25,9	40,1	4. 59. 54,9		B.
	(d) Rigel.....	.....	.....	.....	42,7	56,6	10,1	5. 7. 23,7	- 20,42	B.
	Procyon.....	6,9	20,0	33,8	47,3	0,9	14,4	7. 31. 27,9		B.
	Pollux.....	37,1	52,4	7,9	23,0	38,9	53,8	7. 36. 8,9		B.
	α Hydræ.....	54,9	8,5	21,9	35,6	49,3	2,9	9. 20. 16,8		B.
	Regulus.....	1,9	15,7	29,7	43,2	57,1	10,8	10. 0. 24,6		B.
	☉ 1 L.....	14,8	28,9	42,4	56,2	10,3	24,0	10. 52. 37,9		B.
	Regulus.....	0,5	14,1	28,0	41,5	55,7	9,1	10. 0. 22,9		B.
June 7	☉ 1 L.....	7,7	21,1	34,7	48,8	2,9	16,2	11. 39. 30,0		B.
	Spica.....	57,1	11,0	24,6	38,1	52,0	5,8	13. 17. 19,1		B.
	Arcturus.....	30,9	45,1	59,8	14,0	28,3	42,8	14. 8. 57,1		B.
	Polaris.....	.....	44.30,7	52.52,3	1. 9,6	9.37,4	17.49,4	1. 26. 10,8	- 4. 10,04	B.
	α Arietis.....	15,5	29,9	44,7	59,2	14,1	28,3	1. 58. 43,0		B.
	Venus 2 L.....	19,6	34,4	48,6	3,3	17,7	31,7	4. 12. 46,2		B.
	Aldebaran.....	51,8	5,8	19,7	33,8	47,9	1,8	4. 27. 16,0		B.
	(g) ☉ 1 L.....	21,0	35,6	50,2	5,0	20,1	34,3	5. 5. 49,0		B.
	☉ 2 L.....	39,0	53,6	8,4	23,0	37,9	52,0	5. 8. 7,1		B.
June 8	α Hydræ.....	51,6	5,7	18,9	32,4	46,2	59,7	9. 20. 13,2		B.
	Regulus.....	59,2	12,9	26,2	40,1	54,0	8,0	10. 0. 21,7		B.
	(h) ☉ 1 L.....	44,0	57,6	12,0	25,4	39,9	53,2	12. 25. 6,9		B.
	Polaris SP.....	.....	.....	53.17,5	1.46,5	10. 4,2	18.23,6	13. 26. 44,2	- 8. 18,80	B.
	Spica.....	55,7	9,2	23,1	36,7	50,8	4,2	13. 17. 17,9		B.
	(d) Arcturus.....	29,2	44,0	58,3	12,9	27,2	41,5	14. 8. 55,8		B.
	(i) ☉ 1 L.....	28,0	42,4	57,2	12,1	27,0	41,3	5. 9. 56,0		B.
	☉ 2 L.....	45,5	0,3	15,1	29,9	45,0	59,1	5. 12. 13,7		B.
	Aldebaran.....	48,9	2,9	16,7	31,0	45,0	58,8	4. 27. 12,9		B.
June 10	☉ 2 L..... (Temp. 60°)	52,4	7,2	22,0	36,7	51,3	6,0	5. 16. 20,6		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

June 1, 2<sup>h</sup>. The clock was put forward 1<sup>m</sup>.The Transit was levelled June 4, 2<sup>h</sup>, and June 11, 3<sup>h</sup>.

(a) Cloudy with much vibration. (b) Great motion. (c) Very cloudy and unsteady. Great difference between the temperatures of June 1 and June 2. (d) Very cloudy. (e) Through clouds: wire IV doubtful. (f) Great vibration. (g) First limb tremulous; second limb clouded. (h) Very cloudy and faint. (i) Hazy and faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
4. 27. 20,70 4. 29. 57,51 7. 29. 57,89 7. 34. 33,43 9. 58. 53,66		- 9,46	28,94 57,58 33,37 53,40			1,66	58,12	4. 29. 27,37 7. 30. 56,22 7. 35. 32,01 9. 59. 52,21		☉'s center. Procyon. Pollux. Regulus.
1. 0. 12,20 1. 57. 9,28 3. 35. 53,91 3. 49. 53,17	17,91	- 11,20	34,33 9,06 53,63 52,90	33,61 10,69	59,28 61,63	1,72	61,53	1. 1. 35,93 1. 58. 10,73 3. 36. 55,42 3. 50. 54,70	+ 36,28 - 0,62	Polaris. α Arietis. Venus 2 L. Mercury 2 L.
4. 35. 27,67 4. 37. 44,63 5. 5. 49,88 7. 35. 30,20 9. 19. 42,81 9. 59. 50,54 13. 1. 57,15	51,53		35,91 49,36 30,06 42,29 50,21 33,92	51,42 32,01 44,64 52,30 34,00	62,06 1,95 2,35 2,09 0,03		1,53	4. 37. 37,77 5. 6. 51,25 7. 35. 32,13 9. 19. 44,49 9. 59. 52,46 1. 1. 36,38		☉'s center. Rigel. Pollux. α Hydæ. Regulus. Polaris SP.
5. 46. 51,12 4. 44. 36,88 4. 46. 53,96 5. 6. 47,02 7. 30. 51,70		- 7,89	50,92 45,24 46,65 51,41			1,40	4,37	3. 46. 55,51 4. 45. 49,89 5. 6. 51,32 7. 30. 56,22		Venus 2 L. ☉'s center. Rigel. Procyon.
4. 1. 55,11 4. 34. 28,33 4. 56. 55,40 4. 59. 10,97 5. 6. 42,85 7. 30. 47,32 7. 35. 25,14 9. 19. 35,70 9. 59. 43,23 10. 51. 56,36			54,92 28,15 2,02 42,48 47,03 25,02 35,33 43,04 56,07			1,48	8,62	4. 2. 3,79 4. 34. 37,05 4. 58. 10,95 5. 6. 51,41 7. 30. 56,11 7. 35. 32,10 9. 19. 44,52 9. 59. 52,27 10. 52. 5,56		Venus 2 L. Mercury 2 L. ☉'s center. Rigel. Procyon. Pollux. α Hydæ. Regulus. ♃ 1 L.
9. 59. 41,68 11. 38. 45,78 13. 16. 38,25 14. 8. 14,00 1. 1. 11,66 1. 57. 59,25 4. 12. 3,07 4. 26. 33,83	16,23		41,46 48,47 37,90 13,84 27,80 59,11 2,91 35,65	52,25 56,10 32,00 44,60 52,26	10,79 9,07 8,98 9,27 9,22	1,47	10,14	9. 59. 52,21 11. 38. 59,32 13. 16. 48,85 14. 8. 24,84 1. 1. 39,44 1. 58. 10,81 4. 12. 14,74 4. 26. 45,50	- 1,55 - 2,46 - 2,76 + 31,47 - 0,82 - 0,58	Regulus. ♃ 1 L. Spica. Arcturus. Polaris. α Arietis. Venus 2 L. Aldebaran.
5. 5. 5,03 5. 7. 23,09 9. 19. 32,53 9. 59. 40,30 12. 24. 25,57 13. 1. 44,40 13. 16. 36,80 14. 8. 12,70	39,87		13,88 32,18 40,08 25,22 27,47 36,45 12,54	44,58 52,24	12,40 12,16			5. 6. 25,77 9. 19. 44,32 9. 59. 52,26 12. 24. 37,55 1. 1. 39,84 13. 16. 48,83 14. 8. 24,97		☉'s center. α Hydæ. Regulus. ♃ 1 L. Polaris SP. Spica. Arcturus.
5. 9. 12,00 5. 11. 29,80 4. 26. 30,88 5. 15. 36,60			20,76 30,70 36,46	43,44	14,74	1,41	14,58	5. 10. 34,10 4. 26. 45,54 5. 15. 51,35	- 0,61	☉'s center. Aldebaran. ☉ 2 L.

Error of Collimation = + 1",40.

Level Error = + 1",22. From June 2 = + 0",14. From June 7 = + 0",65.

The Meridian Error from May 31 by Polaris May 31 and Polaris SP June 1, allowing + 0",80 for clock-rate and - 0",29 for change of  $\Delta$ .The Meridian Error from June 2 by Polaris June 7 and Polaris SP June 8, allowing + 0",71 for clock-rate, and - 0",29 for change of  $\Delta$ .

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
June 10	(a) 1 L.....	2,0	16,2	30,9	45,2	0,0	14,1	13. 57. 28,6		B.
	(b) Arcturus.....	26,4	41,1	55,0	9,9	24,1	38,4	14. 8. 52,7		B.
	Jupiter 1 L.....	21,9	...	49,0	...	17,7	...	14. 31. 45,0	- 0,03	B.
	Jupiter 2 L.....	...	39,1	...	6,3	...	33,8	14. 31. ....	+ 0,04	B.
	ε Bootis.....	2,0	17,1	32,0	47,3	3,0	18,1	14. 38. 32,7		B.
	α <sup>2</sup> Libræ..... (cloudy)	...	22,1	36,1	50,0	4,1	...	14. 42. ....	+ 6,94	B.
June 11	Procyon.....	59,7	13,0	26,4	40,0	53,7	7,0	7. 31. 20,5		B.
	Pollux.....	29,9	45,0	0,4	15,7	31,1	45,9	7. 36. 1,7		B.
June 13	ε Bootis.....	57,5	13,0	28,1	43,4	58,9	13,6	14. 38. 29,0		B.
	α <sup>2</sup> Libræ.....	3,9	18,1	31,9	45,8	0,0	13,7	14. 42. 27,7		B.
	(c) σ Scorpii.....	27,7	42,6	57,3	12,7	27,4	41,9	16. 11. 56,8		B.
	Antares.....	35,1	50,3	5,3	20,5	35,7	50,2	16. 20. 5,2		B.
	1 L.....	59,1	14,7	30,2	45,9	2,0	17,1	16. 30. 32,7		B.
	θ Ophiuchi..... (cloudy)	10,9	25,4	40,7	...	10,3	24,8	17. 12. 40,1	+ 0,01	B.
June 14	Α <sup>1</sup> Ophiuchi.....	28,2	43,2	58,7	14,0	29,2	44,1	17. 5. 59,0		B.
	Saturn 1 L.....	27,3	...	56,2	...	25,9	...	17. 8. 54,0	- 0,03	B.
	Saturn 2 L.....	...	45,4	...	14,2	...	43,0	17. 8. ....	+ 0,04	B.
	θ Ophiuchi..... (hazy)	9,4	24,1	39,1	54,2	9,1	23,7	17. 12. 38,3		B.
	(d) 1 L.....	3,0	18,7	34,2	50,0	5,9	21,7	17. 25. 37,0		B.
	α Aquilæ.....	59,3	13,3	26,4	40,3	54,2	7,9	19. 43. 21,2		B.
	β Aquilæ.....	28,0	42,0	55,1	9,0	22,8	36,0	19. 47. 49,2		B.
	Rigel..... (cloudy)	...	2,7	16,2	29,7	43,5	56,9	5. 7. 10,7	- 6,80	B.
June 15	⊙ 1 L.....	12,2	26,6	41,3	56,0	10,9	25,0	5. 34. 39,3		B.
	⊙ 2 L.....	30,0	44,3	59,0	13,9	29,0	43,2	5. 36. 58,0		B.
	α Hydræ.....	41,9	55,2	8,9	22,4	36,2	49,6	9. 20. 3,2		B.
	Regulus.....	48,8	2,7	16,3	30,1	44,1	57,8	10. 0. 11,4		B.
	Polaris SP.....	36.41,2	45. 4,8	53.14,3	1.42,4	10. 1,2	18.21,8	13. 26. 42,4		B.
	α Herculis.....	20,0	33,8	47,3	2,0	16,1	29,7	17. 7. 43,2		B.
	α Ophiuchi.....	29,7	43,8	57,2	11,2	25,1	38,9	17. 27. 52,7		B.
	(e) Venus 2 L.....	32,3	46,6	1,5	16,3	30,8	45,4	4. 53. 59,7		B.
	(e) Rigel.....	47,8	1,1	14,8	28,3	42,1	55,7	5. 7. 9,3		B.
June 16	(e) ⊙ 1 L.....	18,7	33,4	48,2	3,0	18,0	32,3	5. 38. 46,9		B.
	⊙ 2 L.....	37,1	52,0	6,9	21,2	36,1	50,7	5. 41. 5,3		B.
	Mercury 1 L.....	30,1	45,0	59,7	15,0	29,9	44,9	6. 9. 59,6		B.
	Procyon.....	51,9	5,9	19,0	32,7	46,3	59,7	7. 31. 13,2		B.
	Pollux.....	22,6	38,0	53,1	8,5	24,1	38,9	7. 35. 54,1		B.
	Aldebaran..... (cloudy)	38,9	53,0	7,0	20,7	...	...	4. 26. ....	+ 21,03	B.
	(f) Venus 2 L.....	45,5	0,4	14,9	...	...	...	4. 58. ....	+ 29,22	B.
June 17	(g) ⊙ 1 L.....	27,3	42,1	56,6	11,4	26,4	40,8	5. 42. 55,5		B.
	⊙ 2 L..... (cloudy)	45,3	0,1	15,0	29,8	...	59,2	5. 45. 14,0	+ 2,49	B.
	(g) α Hydræ.....	39,0	52,5	6,2	19,7	33,7	46,9	9. 20. 0,7		B.
	(g) Regulus.....	45,8	59,8	13,7	27,3	41,2	54,8	10. 0. 8,8		B.
	(g) Polaris SP.....	36.40,3	45. 2,6	53.13,5	1.42,4	10. 1,7	18.19,8	13. 26. 39,5		B.
	δ Ophiuchi.....	55,8	9,2	22,6	36,2	49,8	3,1	16. 6. 16,7		B.
	Piazzi XVI. 87.....	10,4	25,2	40,0	55,1	10,1	25,0	16. 20. 39,7		B.
	Polaris..... (cloudy)	36.11,4	44.32,3	52.51,3	1.10,2	9.38,7	...	1. ....	+ 8. 18,76	B.
June 18	(h) ⊙ 1 L.....	35,3	50,4	5,3	20,0	34,5	49,1	5. 47. 3,6		B.
	⊙ 2 L.....	54,0	8,7	23,2	38,1	53,0	...	5. 48. ....	+ 14,68	B.
	α Hydræ.....	37,5	51,1	5,0	18,4	31,9	45,4	9. 19. 59,1		B.
	Regulus.....	44,7	58,2	12,1	25,9	40,0	53,4	10. 0. 7,3		B.
	Polaris SP.....	36.41,2	45. 2,3	53.12,3	1.41,2	...	...	13. 26. 38,7	+ 4. 59,80	B.
June 19	α Serpentis.....	18,0	31,8	45,1	59,0	12,8	26,2	15. 36. 39,4		B.
	δ Ophiuchi.....	53,1	6,7	20,1	33,5	47,2	0,6	16. 6. 14,0		B.
ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA. The Transit was levelled June 17, 2 <sup>h</sup> .										
(a) Very cloudy. (b) Flashing between thick clouds. (c) Hazy and faint. (d) Badly defined limb.					(e) Violent motion. (f) Very cloudy and unsteady: wire III marked doubtful. (g) Loud wind (h) Doubtful on account of clouds and unsteadiness.					

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
13. 56. 45.29		- 7.89	44.89			1.41	14.58	13. 57. 0.29		γ 1 L.
14. 8. 9.66			9.50	24.72	15.22			14. 8. 24.91	- 2.74	Arcturus.
14. 31. 3.37			4.33					14. 31. 19.96		Jupiter's center.
14. 31. 6.44			47.37	2.90	15.53			14. 38. 2.81	- 2.91	ε Bootis.
14. 57. 47.46			49.63	5.26	15.63			14. 42. 5.07	- 2.94	α <sup>2</sup> Libræ.
14. 41. 50.01										
7. 30. 40.04			39.77	56.10	16.33	1.39	15.93	7. 30. 56.13	- 0.75	Procyon.
7. 35. 15.67			15.59	31.99	16.40			7. 35. 31.96	- 1.02	Pollux.
14. 37. 43.35		- 6.97	43.28	2.89	19.61	1.44	18.91	14. 38. 3.07	- 2.90	ε Bootis.
14. 41. 45.87			45.54	5.25	19.71			14. 42. 5.33	- 2.93	α <sup>2</sup> Libræ.
16. 11. 12.34			11.93					16. 11. 31.83	- 3.49	σ Scorpii.
16. 19. 20.33			19.94	40.09	20.15			16. 19. 39.83	- 3.55	Antares.
16. 29. 45.96			45.56					16. 30. 5.46		γ 1 L.
17. 11. 55.38			54.99					17. 12. 14.93	- 3.67	θ Ophiuchi.
17. 5. 13.77			13.37			1.40	20.35	17. 5. 34.71	- 5.69	α <sup>1</sup> Ophiuchi.
17. 8. 10.82								17. 8. 33.50		Saturn's center.
17. 8. 14.24			12.15					17. 12. 14.93	- 3.68	θ Ophiuchi.
17. 11. 53.98			53.58					17. 25. 11.02		γ 1 L.
17. 24. 50.07			49.65					19. 43. 1.64	- 2.92	α Aquilæ.
19. 42. 40.37			40.14	1.55	21.41			19. 47. 30.12	- 2.93	β Aquilæ.
19. 47. 8.87			8.62	30.20	21.58			5. 6. 51.53	- 0.43	Rigel.
5. 6. 29.82			29.51	51.57	22.06	1.42	21.72			
5. 33. 55.90			4.76					5. 35. 26.81		☉'s center.
5. 36. 13.91								9. 19. 44.44	- 0.97	α Hydræ.
9. 19. 22.48			22.17	44.53	22.36			9. 59. 52.27	- 1.49	Regulus.
9. 39. 30.17			29.96	52.19	22.23			1. 1. 49.31	+ 25.17	Polaris SP.
13. 1. 41.16	37.78		26.82	44.72	17.90			17. 7. 24.27	- 3.09	α Herculis.
17. 7. 1.73			1.54	24.33	22.79			17. 27. 33.76	- 3.11	α Ophiuchi.
17. 27. 11.22			11.01	33.69	22.68			4. 53. 39.42		Venus 2 L.
4. 53. 16.09			15.93			1.40	23.20	5. 6. 51.64	- 0.44	Rigel.
5. 6. 28.43			28.14	51.58	23.44					
5. 38. 2.93			11.93					5. 39. 35.51		☉'s center.
5. 40. 21.33			14.74					6. 9. 38.30		Mercury 1 L.
6. 9. 14.88			32.42	56.12	23.70			7. 30. 56.06	- 0.77	Procyon.
7. 30. 32.67			8.37	32.00	23.63			7. 35. 32.01	- 1.03	Pollux.
7. 35. 8.47			20.74	45.57	24.83	1.36	24.49	4. 26. 45.48	- 0.74	Aldebaran.
4. 26. 20.93			29.33					4. 58. 54.10		Venus 2 L.
4. 58. 29.49										
5. 42. 11.44			20.43					5. 43. 45.24		☉'s center.
5. 44. 29.72			19.51	44.52	23.01			9. 19. 44.53	- 0.96	α Hydræ.
9. 19. 19.82			27.13	52.17	23.04			9. 59. 52.18	- 1.47	Regulus.
9. 39. 27.34			23.63	46.28	20.65			1. 1. 50.86	+ 23.61	Polaris SP.
13. 1. 39.97	36.59		35.99	1.29	25.30			16. 6. 1.39	- 3.17	λ Ophiuchi.
16. 5. 36.20			54.67					16. 20. 20.08	- 3.55	Piazzi XVI. 87.
16. 19. 55.07			25.13	46.65	21.52	1.29	25.94	1. 1. 51.12	+ 23.24	Polaris.
1. 1. 11.54	14.91									
5. 46. 19.74			28.76					5. 47. 55.01		☉'s center.
5. 48. 38.08			18.04	44.52	26.48			9. 19. 44.48	- 0.96	α Hydræ.
9. 19. 18.33			25.73	52.17	26.44			9. 59. 52.21	- 1.47	Regulus.
9. 39. 25.94			24.60	47.01	22.41			1. 1. 51.24	+ 22.88	Polaris SP.
13. 1. 38.94	33.26									
13. 33. 58.90			38.67	26.53	27.88	1.33	27.02	13. 36. 26.53	- 3.02	α Serpentis.
16. 5. 33.60			33.39	1.30	27.91			16. 6. 1.30	- 3.18	λ Ophiuchi.

Error of Collimation = + 1".40

Level Error = + 0".65. From June 14 = + 0".05

The Meridian Error from June 13 by Polaris SP, Polaris, and Polaris SP June 17 and 18

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
June 19	(a) <i>Piazzi XVI. 87</i> .....	8,0	22,8	37,9	52,8	7,9	22,4	16.20.37,1		B.
	<i>Aldebaran</i> .....	35,0	49,0	2,9	17,0	31,3	45,1	4.26.59,1		B.
	(b) <i>Venus 2 L</i> .....					28,7	43,5	5.14.58,4	- 29,33	B.
June 20	☉ 2 L.....	10,1	24,8	39,9	54,2	9,1	23,7	5.57.38,0		B.
	(c) <i>Mercury 1 L</i> .....	8,0	22,6	38,0	52,9	8,0	22,5	6.46.37,4		B.
	<i>Procyon</i> .....	46,7	0,5	13,9	27,3	41,0	54,4	7.31.8,1		B.
	<i>α Herculis</i> .....	13,2	27,0	41,2	55,2	9,2	22,9	17.7.37,0		B.
	<i>α Ophiuchi</i> .....	23,0	37,1	50,8	4,7	18,7	32,1	17.27.45,7		B.
June 21	(d) <i>Venus 2 L</i> .....	3,7	18,4	33,2	47,5	2,7	...	5.25.....	+ 14,65	B.
June 22	<i>Polaris SP</i> .....	36.39,3	44.59,7	53.8,8	1.38,8	9.56,0	18.15,5	13.26.36,2		B.
	(e) ☽ 2 L.....	11,2	24,9	39,2	52,7	7,0	20,4	0.15.34,1		B.
	<i>Polaris</i> .....	36.8,4	44.26,7	52.49,3	1.7,4	9.34,4	17.44,6	1.26.4,2		B.
	<i>α Arietis</i> .....	55,0	9,5	24,1	38,7	53,7	8,0	1.58.22,3		B.
June 23	☉ 1 L.....	16,2	30,8	45,5	0,3	15,2	29,5	6.7.44,3		B.
	☉ 2 L.....	34,3	49,2	4,0	18,7	33,3	47,8	6.10.2,4		B.
	<i>Mercury 1 L</i> .....	58,0	12,7	27,7	42,3	57,1	12,1	7.12.26,9		B.
	<i>Procyon</i> .....	42,9	56,4	9,8	23,3	37,0	50,4	7.31.4,0		B.
	<i>Pollux</i> .....	13,1	28,2	43,7	59,1	14,6	29,5	7.35.44,9		B.
	(f) ☽ 2 L.....	20,9	35,1	49,0	3,2	17,3	31,0	1.6.45,2		B.
	(g) <i>η Piscium</i> .....	42,0	56,0	9,7	23,4	37,8	51,2	1.23.5,3		B.
	<i>β Arietis</i> .....	33,1	47,9	2,1	16,3	30,8	45,0	1.45.59,2		B.
	<i>α Arietis</i> .....	53,6	8,1	22,8	37,3	52,1	6,5	1.58.21,0		B.
	(h) ☉ 2 L..... (Temp 34°)	42,6	57,0	11,9	26,6	41,1	...	6.14.10,9	+ 4,89	B.
	(g) <i>Regulus</i> .....	...	...	4,1	17,9	31,8	45,4	9.59.59,1	- 13,81	B.
June 24	(i) <i>Piazzi XVI. 87</i> .....	1,0	15,9	...	...	...	15,1	16.20.30,1	+ 0,04	B.
	<i>α Herculis</i> .....	8,4	22,3	36,2	50,2	4,1	17,6	17.7.31,7		B.
June 29	(k) ☉ 1 L..... (Temp 61°)	2,3	17,1	31,7	46,2	1,3	15,7	6.32.30,5		B.
	(g) <i>β Leonis</i> .....	...	...	59,5	13,4	27,7	41,3	11.40.55,2	- 13,97	B.
	<i>Arcturus</i> .....	59,3	13,9	28,2	42,4	56,9	11,1	14.8.25,0		B.
	(h) <i>ε Bootis</i> .....	34,8	49,9	5,3	20,6	35,9	...	14.37.....	+ 15,19	B.
	<i>α Ophiuchi</i> .....	10,0	23,7	37,3	51,3	5,2	19,0	17.27.32,9		B.
	(l) <i>Pallas</i> .....	...	30,1	45,0	59,2	13,8	28,3	18.46.42,6	- 7,28	B.
	<i>α Aquilæ</i> .....	...	...	...	19,1	33,0	46,3	19.43.0,2	- 20,42	B.
	<i>β Aquilæ</i> .....	7,3	20,7	34,1	47,9	1,7	15,2	19.47.28,3		B.
	<i>Arcturus</i> .....	58,0	12,0	26,2	40,5	55,0	9,2	14.8.23,5		B.
June 30	(g) <i>ε Bootis</i> .....	33,0	...	3,7	...	34,1	49,0	14.38.4,2	- 6,10	B.
July 2	(g) <i>Venus 2 L</i> .....	36,4	51,1	6,0	20,8	35,5	50,0	6.24.4,8		B.
July 3	(m) ☉ 2 L.....	46,8	1,7	16,3	31,0	45,8	0,1	6.51.14,5		B.
	(g) <i>Procyon</i> .....	27,7	41,1	54,7	8,3	...	...	7.30.....	20,31	B.
	(g) <i>Pollux</i> .....	...	13,9	29,0	44,2	59,9	14,9	7.35.....	- 0,02	B.
	(g) <i>Mercury 1 L</i> .....	27,7	42,2	57,1	11,6	26,1	40,2	8.25.54,6		B.
	(g) <i>α Hydre</i> .....	...	...	...	56,7	10,3	23,2	9.19.57,1	- 20,38	B.
	(n) ☽ 1 L.....	31,4	45,3	59,3	13,2	27,2	41,1	10.30.55,1		B.
July 6	<i>α Ophiuchi</i> .....	58,0	12,0	26,0	39,3	53,2	7,0	17.27.20,9		B.
	<i>α Aquilæ</i> .....	26,9	40,3	53,9	7,5	21,3	34,7	19.42.48,3		B.
	<i>β Aquilæ</i> .....	55,2	9,2	22,9	36,3	50,1	3,0	19.47.16,7		B.
	(g) <i>Aldebaran</i> .....	...	...	36,7	50,8	4,9	18,7	4.26.32,7	- 14,01	B.
	<i>Venus 2 L</i> .....	57,4	12,4	26,7	41,6	56,7	10,9	6.45.25,7		B.
July 7	☉ 1 L.....	49,4	4,2	19,0	33,6	48,4	3,0	7.5.17,7		B.
	☉ 2 L.....	7,0	21,6	36,2	50,9	5,6	20,0	7.7.34,7		H.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.  
The Transit was levelled June 24, 2<sup>h</sup>, and July 6, 2<sup>h</sup>.

(a) Unsatisfactory. (b) Extremely cloudy. (c) Great motion. (d) Cloudy with much motion: wires IV and V doubtful. (e) Cloudy and ragged. (f) Limb very uneven. (g) Cloudy. (h) Extremely cloudy and doubtful. (i) Cloudy and very unsatisfactory. Wires III, IV, and V were written down 30,4, 44,9, and 0,4 and marked doubtful: they are omitted as being very discordant. (k) Cloudy with much motion. Rise of temperature between the 24th and 29th. (l) Very faint. (m) Cloudy with much motion. (n) Badly defined and unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed lowing Rate.	Clock Slow at (h).	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
16. 19. 52.70		- 6.97	52.30			1.33	27.02	16. 20. 20.22	- 3.56	Piazzi XVI. 87.
4. 26. 17.06			16.87	45.63	28.76	1.46	28.43	4. 26. 45.57	- 0.80	Aldebaran.
5. 14. 14.20			14.05					5. 14. 42.80		Venus 2 L.
5. 56. 54.26			54.11					5. 57. 22.90		☉ 2 L.
6. 45. 52.77			52.63					6. 46. 21.47		Mercury 1 L.
7. 30. 27.42			27.17	56.14	28.97			7. 30. 56.06	- 0.79	Procyon.
17. 6. 55.10			54.91	24.36	29.45			17. 7. 24.38	- 3.12	α Herculis.
17. 27. 4.59			4.38	33.74	29.36			17. 27. 33.87	- 3.16	α Ophiuchi.
5. 24. 47.75		- 7.40	47.57			1.31	31.36	5. 25. 19.22		Venus 2 L.
13. 1. 36.33	33.47		21.84	49.93	28.09			1. 1. 53.91	+ 19.96	Polaris SP.
0. 14. 52.78			52.49				32.67	0. 15. 25.17		☉ 2 L.
1. 1. 7.86	10.69		21.53	50.33	28.80			1. 1. 54.25	+ 19.56	Polaris.
1. 57. 38.76			38.58	11.36	32.78			1. 58. 11.35	- 1.29	α Arietis.
6. 7. 0.25								6. 8. 42.21		☉'s center.
6. 9. 18.53			9.21					7. 12. 15.29		Mercury 1 L.
7. 11. 42.40			42.23					7. 30. 56.20	- 0.80	Procyon.
7. 30. 23.40			23.12	56.15	33.03			7. 35. 31.97	- 1.06	Pollux.
7. 54. 59.02			58.89	32.03	33.14			1. 6. 36.84		☉ 2 L.
1. 6. 3.10			2.86			1.24	33.92	1. 22. 57.40	- 1.50	η Piscium.
1. 22. 23.63			23.41					1. 45. 50.16	- 1.37	β Arietis.
1. 45. 16.31			16.15					1. 58. 11.19	- 1.32	α Arietis.
1. 57. 37.35			37.17	11.39	34.22			6. 14. 0.63		☉ 2 L.
6. 13. 26.57			26.39					9. 59. 52.05	- 1.43	Regulus.
9. 59. 17.85			17.61	52.13	34.52			16. 20. 19.90	- 3.58	Piazzi XVI. 87.
16. 19. 45.57			45.14					17. 7. 24.65	- 3.14	α Herculis.
17. 6. 50.07			49.85	24.38	34.53			6. 32. 28.14		☉ 1 L.
6. 31. 46.40			46.22			1.67	41.17	11. 10. 55.51	- 1.90	β Leonis.
11. 40. 13.45			13.23	55.59	42.36			14. 8. 24.66	- 2.59	Arcturus.
14. 7. 42.40			42.21	24.57	42.36			14. 38. 2.84	- 2.77	ε Bootis.
14. 37. 20.49			20.35	2.76	42.41			17. 27. 33.78	- 3.21	α Ophiuchi.
17. 26. 51.34			51.10	33.79	42.69			18. 46. 41.81		Pallas.
18. 45. 59.22			59.04					19. 43. 1.81	- 3.22	α Aquilæ.
19. 42. 19.23			18.97	1.85	42.88			19. 47. 30.16	- 3.23	β Aquilæ.
19. 46. 47.89			47.61	30.50	42.89			14. 8. 24.57	- 2.58	Arcturus.
14. 7. 40.62			40.43	24.56	44.13	1.59	43.21	14. 38. 2.74	- 2.76	ε Bootis.
14. 37. 18.70			18.56	2.75	44.19			6. 24. 8.51		Venus 2 L.
6. 23. 20.63		- 4.76	20.62			1.56	47.47	6. 51. 18.76		☉ 2 L.
6. 50. 30.88			30.85					7. 30. 56.11	- 0.86	Procyon.
7. 50. 8.26			8.15	56.21	48.06			7. 35. 32.33	- 1.14	Pollux.
7. 54. 44.36			44.37	32.11	47.74			8. 25. 59.33		Mercury 1 L.
8. 25. 11.35			11.31					9. 19. 44.35	- 0.91	α Hydriæ.
9. 18. 56.44			56.28	44.47	48.19			10. 31. 1.29		☉ 1 L.
10. 30. 13.23			13.14					17. 27. 33.75	- 3.23	α Ophiuchi.
17. 26. 39.49			39.41	33.81	54.40	2.05	52.85	19. 43. 2.00	- 3.33	α Aquilæ.
19. 42. 7.56			7.47	1.96	54.49			19. 47. 30.63	- 3.34	β Aquilæ.
19. 46. 36.20			36.09	50.61	54.52			4. 26. 46.05	- 1.22	Aldebaran.
4. 25. 59.75			59.68	16.05	55.37	2.10	54.98	6. 45. 37.17		Venus 2 L.
6. 44. 41.63			41.60					7. 6. 37.80		☉'s center
7. 4. 33.61										
7. 6. 50.85			42.20							

Error of Collimation = + 1".40.

Level Error = + 0".05. From June 21 = 0".22. From July 2 = + 0".61

Meridian Error from June 21 by Polaris SP and Polaris June 22, allowing + 0".69 for clock-rate and + 0".40 for change of H.

Meridian Error by 2 Ursa Minoris and α Aquilæ July 9 = - 1".93, by Polaris SP and Antares July 10 = - 5".13; by 2 Ursa Minoris and α Ophiuchi July 11 = 0".65; by Polaris SP and Arcturus July 13 = 5".99, and by 2 Ursa Minoris and α Aquilæ July 15 = 4".12, the respective allowances for clock-rate being, 0".12, 0".27, 0".06, 0".07, 0".08. The mean of the five results is used from July 2.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.		II.		III.		IV.		V.		VI.		VII. Wire.			Correction for Wires omitted.		Observer.
		m.	s.	m.	s.	m.	s.	m.	s.	m.	s.	m.	s.	h.	m.	s.	m.	s.	
July 7	(a) Procyon.....	20,1		...		47,2		0,8		14,3		27,7		7.30.41,1			- 4,51		B.
	Regulus.....	14,8		28,6		42,3		56,2		10,3		23,8		9.59.37,5					B.
	(a) α Ophiuchi.....	56,0		9,8		23,7		37,4		51,8		...		17.27.....			+ 13,77		B.
	(a) Aldebaran.....	6,9		20,6		34,8		48,7		3,1		16,8		4.26.....			+ 6,99		B.
July 8	(b) ☉ 1 L.....	53,2		8,8		...		37,3		52,2		6,8		7.9.21,3			- 2,44		B.
	☉ 2 L.....	11,0		25,2		40,0		54,4		9,2		23,7		7.11.38,3					B.
	Pallas.....	34,0		48,2		2,9		17,2		31,8		46,1		18.39.0,8					B.
	α Aquilæ.....	22,7		36,2		49,8		3,8		17,3		30,8		19.42.44,2					B.
	(c) β Aquilæ.....	51,4		5,0		18,3		32,0		45,8		59,1		19.47.12,9					B.
July 9	☉ 1 L.....	57,1		11,5		26,1		41,0		55,8		10,1		7.13.24,6					B.
	☉ 2 L.....	14,2		28,8		43,3		58,0		13,0		27,1		7.15.41,9					B.
	Pollux.....	46,7		2,0		17,2		32,6		48,1		3,0		7.35.18,3					B.
	(d) Mercury 1 L.....	57,6		12,0		26,0		39,9		54,4		8,3		9.0.22,6					B.
	α Ophiuchi.....	52,1		5,9		19,8		33,2		47,1		1,1		17.27.14,7					B.
	δ Ursæ Minoris.....	11.40,8		15.26,5		19.13,3		22.58,2		26.49,2		30.30,8		18.34.17,6					B.
	(e) Pallas.....	42,9		57,3		12,1		27,1		41,3		55,7		18.38.10,4					B.
	α Aquilæ.....	20,4		34,1		47,9		1,4		15,2		28,4		19.42.42,1					B.
	β Aquilæ.....	49,2		2,9		16,4		30,0		43,5		57,1		19.47.10,4					B.
	(f) Ceres.....	38,1		53,1		8,8		24,2		40,1		55,2		20.0.11,0					B.
	Polaris SP.....	37.18,3		45.38,2		53.48,5		2.17,7		...		...		13.27.15,2			+ 4.59,85		B.
	☉ 1 L.....	57,1		13,0		28,2		44,0		59,9		15,1		16.12.30,2					B.
	Antares.....	53,0		7,9		23,0		38,0		53,1		8,1		16.20.22,9					B.
	(g) τ Scorpii.....	11,7		27,4		42,3		57,4		13,4		27,8		16.26.43,1					B.
July 10	Pallas.....	52,8		7,4		22,1		36,4		51,1		5,7		18.38.20,1					B.
	α Aquilæ.....	18,8		32,2		45,9		59,3		13,1		26,5		19.43.40,0					B.
	β Aquilæ.....	47,0		0,7		14,4		28,1		42,0		54,9		19.48.8,5					B.
	(h) Aldebaran.....	...		...		28,9		42,8		56,6		10,4		4.27.24,5			- 14,01		B.
	(h) Rigel.....	7,9		21,1		34,9		48,4		2,4		...		5.7.....			+ 13,58		B.
	β Tauri.....	22,8		38,1		53,2		8,7		24,2		39,0		5.16.54,2					B.
	☉ 1 L.....	3,2		17,8		32,3		47,0		1,7		16,1		7.22.30,5					B.
	☉ 2 L.....	20,0		34,5		49,1		3,9		18,8		33,0		7.24.47,1					B.
	Arcturus.....	37,0		51,3		5,9		20,2		34,7		48,9		14.9.3,0					B.
	(h) Jupiter 1 L.....	...		...		...		...		49,7		...		14.28.17,1			- 27,74		B.
	Jupiter 2 L.....	...		...		...		...		...		6,1		14.28.....			- 27,62		B.
	(i) τ Scorpii.....	9,9		25,0		40,1		55,1		10,5		26,1		16.26.40,9					B.
	Saturn 1 L.....	6,2		...		35,4		...		4,9		...		17.1.33,1			- 0,03		B.
	Saturn 2 L.....	...		24,1		...		53,2		...		22,1		17.1.....			+ 0,04		B.
	(k) ☉ 1 L.....	34,9		50,8		6,8		22,2		38,1		53,8		17.7.9,3					B.
	ε Ophiuchi.....	54,9		9,9		24,0		39,0		54,0		8,1		17.22.22,9					B.
	α Ophiuchi.....	47,9		2,1		16,0		29,4		43,4		57,1		17.28.10,9					B.
	A.S.C. 2052.....	2,1		17,1		33,0		48,3		4,1		19,7		17.49.35,0					B.
	δ Ursæ Minoris.....	12.32,5		16.19,2		20.6,4		23.51,7		27.42,4		31.24,2		18.....			+ 1.52,97		B.
	(e) Pallas.....	3,1		17,9		32,6		47,0		0,9		15,8		18.37.30,4					B.
July 13	Polaris SP.....	...		...		53.46,6		2.14,3		10.31,8		18.51,5		13.27.12,3			- 8.18,86		B.
	Arcturus.....	33,0		47,0		1,7		16,0		30,4		44,3		14.8.58,8					B.
	(e) Jupiter 1 L.....	58,3		...		26,0		...		54,0		...		14.28.21,3			- 0,03		B.
	Jupiter 2 L.....	...		15,1		...		43,0		...		10,7		14.28.....			+ 0,04		B.
	ε Bootis.....	8,9		23,4		38,8		54,0		9,3		24,1		14.38.39,7					B.
	Antares.....	46,2		1,4		16,3		31,2		46,9		1,4		16.20.16,2					B.
	λ Sagittarii.....	16,1		31,2		45,9		1,1		16,2		31,0		18.18.46,2					B.
	δ Ursæ Minoris.....	12.30,4		...		...		23.48,7		27.38,6		31.20,6		18.....			- 0.0,42		B.
	(e) Pallas.....	24,9		39,3		53,6		8,2		23,1		36,9		18.35.51,3					B.
	(f) ☉ 1 L.....	45,0		0,4		16,1		31,6		47,3		2,9		18.58.18,1					B.
	χ <sup>1</sup> Sagittarii.....	43,0		57,4		12,9		27,2		42,1		57,1		19.16.12,2					B.
	h <sup>9</sup> Sagittarii.....	8,6		23,1		38,1		52,9		8,1		22,9		19.27.37,6					B.
	α Aquilæ.....	12,1		26,0		39,4		53,1		7,0		20,2		19.43.33,9					B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

July 10, 0<sup>h</sup>. The clock was put forward 1<sup>m</sup>.July 14, 2<sup>h</sup>. The Transit was levelled.

(a) Cloudy. (b) Blazing and then too faint: a difficult transit. (c) Steady. (d) Great motion.  
 (e) Faint. (f) Unsteady. (g) Flaring. (h) Very cloudy. (i) Faint and unsteady.  
 (k) Much unsteadiness. (l) Tremulous.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
7. 30. 0.69		-4.76	0.58	56.24	55.66	2.10	54.98	7. 30. 56.22	-0.89	Procyon.
9. 58. 56.22			56.14	52.09	55.95			9. 59. 51.99	-1.39	Regulus.
17. 26. 57.51			57.43	33.81	56.38			17. 27. 33.93	-3.23	$\alpha$ Ophiuchi.
4. 25. 48.81			48.74	6.07	57.33	2.03	56.94	4. 26. 46.05	-1.24	Aldebaran.
7. 8. 57.49			45.98					7. 10. 43.53		$\odot$ 's center.
7. 10. 54.54			17.25					18. 39. 15.77		Pallas.
18. 38. 17.29			3.45	1.99	58.54			19. 43. 2.06	-3.36	$\alpha$ Aquilæ.
19. 42. 3.54			31.96	30.64	58.68			19. 47. 30.58	-3.37	$\beta$ Aquilæ.
19. 46. 32.07										
7. 12. 40.88			49.43			2.06	59.03	7. 14. 49.08		$\odot$ 's center.
7. 14. 58.05			32.56	32.17	59.61			7. 35. 32.24	-1.20	Pollux.
7. 34. 32.55			40.07					9. 0. 39.87		Mercury 1 L.
8. 59. 40.12			33.33	33.82	60.49			17. 27. 33.86	-3.24	$\alpha$ Ophiuchi.
17. 26. 33.41	1.54		4.55	3.25	58.70			18. 24. 5.16	-7.91	$\delta$ Ursæ Minoris.
18. 22. 59.49			26.65					18. 38. 27.28		Pallas.
18. 37. 26.69	1.48		1.26	2.00	60.74			19. 43. 1.98	-3.37	$\alpha$ Aquilæ.
19. 42. 1.35			29.81	30.66	60.85			19. 47. 30.54	-3.39	$\beta$ Aquilæ.
19. 46. 29.92			24.11					20. 0. 24.86		Ceres.
19. 59. 24.96										
13. 2. 15.43	10.98		3.50	5.04	1.54	2.05	1.04	1. 2. 5.65	+4.85	Polaris SP.
16. 11. 43.93			43.70					16. 11. 46.12		$\gamma$ 1 L.
16. 19. 38.00	38.12		37.77	40.14	2.37			16. 19. 40.20	-3.60	Antares.
16. 25. 57.59			57.35					16. 25. 59.79	-3.68	$\tau$ Scorpii.
18. 37. 36.52			36.48					18. 37. 39.11		Pallas.
19. 42. 59.40			59.31	2.01	2.70			19. 43. 2.03	-3.38	$\alpha$ Aquilæ.
19. 47. 27.95			27.84	30.67	2.83			19. 47. 30.57	-3.40	$\beta$ Aquilæ.
4. 26. 42.63			42.55	46.15	3.60	2.12	3.11	4. 26. 46.05	-1.32	Aldebaran.
5. 6. 48.52			48.35	52.04	3.69			5. 6. 51.91	-0.90	Rigel.
5. 16. 8.60			8.58	12.23	3.65			5. 16. 12.16	-1.30	$\beta$ Tauri.
7. 21. 46.95			55.30					7. 22. 59.06		$\odot$ 's center.
7. 24. 3.77			20.08	24.44	4.36			14. 8. 24.44	-2.46	Arcturus.
14. 8. 20.14			36.88					14. 27. 41.27		Jupiter's center.
14. 27. 35.66			55.12					16. 25. 59.68	-3.67	$\tau$ Scorpii.
14. 27. 38.48			51.30					17. 0. 55.91		Saturn's center.
16. 25. 55.37			22.02					17. 6. 26.64		$\gamma$ 1 L.
17. 0. 49.87			38.74					17. 21. 43.38	-3.87	$\epsilon'$ Ophiuchi.
17. 0. 53.17			29.46	33.82	4.36			17. 27. 34.12	-3.24	$\alpha$ Ophiuchi.
17. 6. 22.27	29.67		48.21					17. 48. 52.89	-4.18	A.S.C. 2052.
17. 21. 38.97			57.20	2.90	5.70			18. 24. 1.93	-7.56	$\delta$ Ursæ Minoris.
17. 27. 29.55			46.76					18. 36. 51.51		Pallas.
17. 48. 48.47	54.19									
18. 23. 52.37										
18. 36. 46.82										
13. 2. 12.44	8.47		0.99	7.62	6.63	2.09	7.38	1. 2. 9.50	+2.27	Polaris SP.
14. 8. 15.89	16.01		15.85	24.42	8.59			14. 8. 24.44	-2.44	Arcturus.
14. 27. 39.87			41.23					14. 27. 49.87		Jupiter's center.
14. 27. 42.97			53.92	2.59	8.67			14. 38. 2.57	-2.60	$\epsilon$ Bootis.
14. 37. 53.94			31.14	40.13	8.99			16. 19. 39.94	-3.59	Antares.
16. 19. 31.37			0.87					18. 18. 9.84	-4.13	$\lambda$ Sagittarii.
18. 18. 1.10			53.98	2.51	8.53			18. 24. 2.96	-7.17	$\delta$ Ursæ Minoris.
18. 23. 40.15	50.97		8.13					18. 35. 17.13		Pallas.
18. 35. 8.19			31.40					18. 57. 40.42		$\gamma$ 1 L.
18. 57. 31.63			27.19					19. 15. 36.25	-4.19	$\chi'$ Sagittarii.
19. 15. 27.42			52.81					19. 27. 1.88	-4.22	$\chi''$ Sagittarii.
19. 26. 53.04			53.60	2.04	9.04			19. 43. 2.09	-3.41	$\alpha$ Aquilæ.
19. 42. 53.10	53.22									

Error of Collimation = +1".40.

Level Error = +0".61 From Aldebaran July 10 = +0".36.

Meridian Error by  $\delta$  Ursæ Minoris and  $\beta$  Aquilæ July 15 = 5".55; by the same stars July 16 = 1".52; by Polaris SP July 17 compared with  $\alpha$  Capricorni July 16 = 3".63, the respective allowances for clock-rate being 0".15, 0".11, and 1".26. The mean of the three results is used from Rigel July 13.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		PH. S.	PH. S.	PH. S.	PH. S.	PH. S.	PH. S.	h. PH. S.		
July 13	$\beta$ Aquilæ.....	41,0	54,8	8,7	21,8	35,4	49,1	19.48.2,3		B.
	(a) Ceres.....	48,8	3,9	19,7	35,2	51,2	6,1	19.57.22,1		B.
	Rigel.....	1,8	15,4	28,7	42,3	56,0	9,1	5.7.23,1		B.
July 14	(b) $\odot$ 2 L.....	24,9	39,4	54,0	8,8	...	37,5	7.36.....	+ 11,65	B.
	$\chi^1$ Sagittarii.....	40,7	55,2	10,2	24,9	40,0	54,7	19.16.9,4		B.
	(c) $h^a$ Sagittarii.....	6,1	21,0	35,8	51,2	5,9	20,6	19.27.35,2		B.
	$\alpha$ Aquilæ.....	10,1	23,9	37,1	51,1	4,9	18,0	19.43.31,6		B.
	$\beta$ Aquilæ.....	39,1	52,5	6,1	19,3	33,0	46,9	19.48.0,1		B.
	(d) $\gamma$ 1 L.....	53,8	9,0	24,0	39,1	54,8	9,3	19.52.24,4		B.
	$\gamma$ 2 L.....	9,2	24,7	39,6	54,9	10,2	25,1	19.54.40,2		B.
	Rigel.....	59,1	12,8	26,3	39,9	53,7	6,9	5.7.20,6		B.
	(e) Venus 1 L.....	19,3	34,0	48,8	3,2	18,0	32,3	7.28.47,1		B.
	$\odot$ 1 L. { (Temp. 61°)	9,1	23,6	38,1	52,8	7,4	21,3	7.38.36,1		B.
July 15	$\odot$ 2 L. {	25,2	40,0	54,3	9,1	24,0	...	7.40.....	+ 14,48	B.
	$\alpha$ Hydræ.....	51,8	4,9	18,3	32,1	45,8	59,1	9.20.12,9		B.
	(f) Mercury 1 L.....	20,1	33,9	47,7	1,9	16,0	29,5	9.28.43,4		B.
	Regulus.....	58,5	12,3	26,0	39,6	53,7	7,0	10.0.20,8		B.
	$\delta$ Ursæ Minoris.....	12.24,2	16.10,5	19.56,3	...	27.34,2	31.14,3	18.....	+ 2.15,42	B.
	$\beta$ Aquilæ.....	36,5	50,1	4,1	17,2	31,1	44,2	19.47.58,0		B.
	$\alpha^2$ Capricorni.....	18,9	33,2	47,1	1,0	14,9	28,2	20.9.42,0		B.
	$\pi$ Capricorni.....	17,1	31,5	46,1	0,0	14,1	28,1	20.18.42,3		B.
	(g) $\gamma$ 2 L.....	12,3	27,1	42,0	56,4	11,9	26,2	20.46.40,9		B.
	$\beta$ Aquarii.....	17,7	31,0	44,5	58,2	12,0	25,1	21.23.38,7		B.
	$\epsilon$ Capricorni.....	14,0	28,2	43,1	57,2	11,7	25,9	21.28.40,1		B.
	(h) $\delta$ Ursæ Minoris.....	...	...	19.58,2	23.44,0	...	31.15,2	18.35.1,8	- 3.45,63	B.
	$\alpha$ Aquilæ.....	6,1	19,8	33,3	47,2	0,9	14,3	19.43.27,8		B.
	$\beta$ Aquilæ.....	35,1	48,7	2,6	15,8	29,2	42,5	19.47.56,4		B.
	(i) Ceres.....	52,1	8,1	...	40,3	...	...	19.54.....	+ 25,94	B.
	$\alpha^2$ Capricorni.....	17,6	31,2	44,9	59,1	13,2	26,1	20.9.40,2		B.
July 16	(k) $\epsilon$ Capricorni.....	58,9	13,0	27,3	41,2	56,1	9,8	21.7.24,3		B.
	(h) $\beta$ Aquarii.....	16,0	29,3	42,9	56,2	...	...	21.23.37,1	+ 8,15	B.
	$\epsilon$ Capricorni.....	12,3	26,7	41,0	55,2	9,5	24,1	21.28.38,2		B.
	$\gamma$ 2 L.....	8,9	23,0	36,9	51,5	6,0	20,0	21.36.34,3		B.
	$\epsilon$ Aquarii.....	53,9	7,9	21,7	35,6	50,1	3,4	21.58.17,1		B.
	$\theta$ Aquarii.....	30,6	44,0	57,6	11,1	25,1	38,5	22.8.52,0		B.
	(l) $\odot$ 1 L.....	...	...	...	...	8,2	22,4	7.46.37,0	- 28,98	B.
July 17	$\odot$ 2 L.....	26,0	40,3	55,0	9,3	24,0	38,2	7.48.53,0		B.
	Polaris SP.....	37.3,8	...	53.37,4	2.6,2	...	18.43,8	13.....	+ 4.10,73	B.
July 19	Pollux.....	25,1	40,7	56,0	11,2	26,7	41,4	7.35.56,9		B.
July 20	(m) Mercury 1 L.....	30,0	43,9	57,6	11,3	25,7	39,0	9.45.52,8		B.
	Regulus.....	49,3	3,2	17,0	30,8	45,1	58,2	10.0.12,2		B.
	(n) Rigel.....	48,8	2,7	16,3	...	...	...	5.7.10,9	+ 10,23	B.
July 21	(n) $\beta$ Tauri.....	...	19,2	34,7	50,1	5,3	20,4	5.16.....	- 0,02	B.
	(l) $\odot$ 1 L.....	5,3	19,8	34,1	48,5	3,3	17,3	8.2.31,8		B.
	$\odot$ 2 L.....	21,0	35,2	49,9	4,1	18,9	33,0	8.4.47,2		B.
July 22	(l) Mercury 1 L.....	...	...	...	...	11,2	25,0	9.48.....	- 20,73	B.
	Regulus.....	47,9	1,6	15,2	29,1	43,1	56,6	10.0.10,5		B.
	$\delta$ Ursæ Minoris.....	12.15,8	16.2,3	19.48,2	23.33,3	27.25,2	...	18.....	+ 3.45,98	B.
July 22	(l) $\odot$ 1 L.....	3,3	17,4	31,8	46,1	0,9	15,2	8.6.29,1		B.
	(n) Mercury 1 L.....	...	...	15,6	29,2	43,2	56,8	9.51.10,8	- 13,75	B.
	(n) Polaris SP.....	...	45.21,7	...	2.1,2	10.23,6	...	13.....	+ 2.45,37	B.
	(n) $\alpha$ Herculis.....	17,7	...	...	59,2	13,6	27,1	17.7.40,9	- 8,35	B.
	$\alpha$ Ophiuchi.....	27,1	41,1	55,1	8,9	22,8	36,2	17.27.50,1		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

The Transit was levelled July 21, 2<sup>h</sup>, and July 28, 4<sup>h</sup>, just before the reversion.

(a) Faint. (b) Cloudy. (c) Hazy. (d) Both limbs uneven. Correction applied to apparent  $R$  of 1 L for defect of illumination = 0,14. (e) Cloudy with much motion: 1 L taken by mistake. (f) Dancing. (g) Rugged. (h) Very cloudy. (i) Very doubtful, the planet being so faint and low. (k) Cloudy and much confused. (l) Extremely cloudy and unsteady. (m) The instrument was moved by the wind. (n) Wires lost in all these by clouds.

Concluded Transit over the Mean of the seven Wires.			Seconds of Transit corr. for Errors of Level and Collimation.		Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.			Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A.	M.	S.	d.		"	"	"	"	"	"	A.	M.	S.	"	
19.	47.	21.87			- 4.76	21.73	30.70	8.05	2.09	7.38	19.	47.	30.85	- 3.43	$\beta$ Aquilæ.
19.	56.	35.29				35.03					19.	56.	44.14		Ceres.
5.	6.	42.34			- 3.57	42.24	52.11	9.87	2.17	9.89	5.	6.	52.09	- 0.97	Rigel.
7.	36.	8.57				8.56					7.	36.	18.64		$\odot$ 2 L.
19.	15.	25.02				24.87					19.	15.	36.00	- 4.20	$\gamma^1$ Sagittarii.
19.	26.	50.83				50.68					19.	27.	1.83	- 4.22	$\delta^2$ Sagittarii.
19.	42.	50.95				50.90	2.06	11.16			19.	43.	2.07	- 3.43	$\alpha$ Aquilæ.
19.	47.	19.58				19.52	30.72	11.20			19.	47.	30.70	- 3.45	$\beta$ Aquilæ.
19.	51.	39.13				38.98					19.	51.	50.03		$\gamma$ 1 L.
19.	53.	54.84				54.69					19.	54.	5.88		$\gamma$ 2 L.
5.	6.	39.90				39.80	52.14	12.34	2.04	11.74	5.	6.	51.97	- 1.00	Rigel.
7.	28.	3.24				3.23					7.	28.	15.60		Venus 1 L.
7.	37.	52.63									7.	39.	13.20		$\odot$ 's center.
7.	40.	9.00				0.81									
9.	19.	32.03				31.95	44.47	12.52			9.	19.	44.48	- 0.91	$\alpha$ Hydræ.
9.	28.	1.78				1.75					9.	28.	14.29		Mercury 1 L.
9.	59.	39.70				39.66	52.07	12.41			9.	59.	52.25	- 1.37	Regulus.
18.	23.	43.32	45.14			47.40	2.09	14.69			18.	24.	0.70	- 6.75	$\delta$ Ursæ Minoris.
19.	47.	17.32	17.43			17.26	30.73	13.47			19.	47.	30.68	- 3.46	$\beta$ Aquilæ.
20.	9.	0.73				0.64	14.24	13.60			20.	9.	14.09	- 3.83	$\alpha^2$ Capricorni.
20.	17.	59.88				59.75					20.	18.	13.21	- 4.00	$\omega$ Capricorni.
20.	45.	56.69				56.55					20.	46.	10.06		$\gamma$ 2 L.
21.	22.	58.17				58.06	11.50	13.44			21.	23.	11.61	- 3.52	$\beta$ Aquarii.
21.	27.	57.17				57.04					21.	28.	10.60	- 3.85	$\epsilon$ Capricorni.
18.	23.	44.17	45.99			48.25	1.89	13.64	1.78	13.69	18.	24.	3.30	- 6.55	$\delta$ Ursæ Minoris.
19.	42.	47.06				47.01	2.08	15.07			19.	43.	2.16	- 3.45	$\alpha$ Aquilæ.
19.	47.	15.76	15.87			15.70	30.74	15.04			19.	47.	30.86	- 3.47	$\beta$ Aquilæ.
19.	53.	39.44				39.28					19.	53.	54.45		Ceres.
20.	8.	58.90	59.01			58.79	14.26	15.47			20.	9.	13.97	- 3.85	$\alpha^2$ Capricorni.
21.	6.	41.51				41.39					21.	6.	56.64	- 3.81	$\epsilon$ Capricorni.
21.	22.	56.45				56.34	11.52	15.18			21.	23.	11.61	- 3.54	$\beta$ Aquarii.
21.	27.	55.29				55.16					21.	28.	10.44	- 3.86	$\epsilon$ Capricorni.
21.	35.	51.51				51.39					21.	36.	6.68		$\gamma$ 2 L.
21.	57.	33.67				33.55					21.	57.	50.87	- 3.60	$\epsilon$ Aquarii.
22.	8.	11.27				11.17					22.	8.	26.50	- 3.14	$\delta$ Aquarii.
7.	45.	53.55								15.47	7.	47.	17.52		$\odot$ 's center.
7.	48.	9.40				1.47									
13.	2.	3.53	29.56			53.95	10.58	16.63			1.	2.	10.38	- 0.69	Polaris SP.
7.	35.	11.14			- 3.14	11.17	32.32	21.15	1.62	20.63	7.	35.	32.31	- 1.35	Pollux.
9.	45.	11.47				11.44					9.	45.	32.73		Mercury 1 L.
9.	59.	30.82				30.79	52.07	21.28			9.	59.	52.09	- 1.37	Regulus.
5.	6.	29.90				29.82	52.28	22.46	1.61	22.20	5.	6.	52.36	- 1.14	Rigel.
5.	15.	49.92				49.94	12.50	22.56			5.	16.	12.49	- 1.57	$\beta$ Tauri.
8.	1.	48.50									8.	1.	19.12		$\odot$ 's center.
8.	4.	4.18				56.38									
9.	47.	57.57				57.34					9.	48.	20.20		Mercury 1 L.
9.	59.	29.15	29.26			29.12	52.07	22.95			9.	59.	51.99	- 1.37	Regulus.
18.	23.	34.94	36.61			38.90	0.98	22.38			18.	24.	2.03	- 5.64	$\delta$ Ursæ Minoris.
8.	5.	46.26				46.25			1.65	23.85	8.	6.	10.66		$\odot$ 1 L.
9.	59.	9.57				29.34					9.	59.	53.86		Mercury 1 L.
13.	2.	0.87	57.24			52.29	14.46	22.17			1.	2.	17.03	- 4.57	Polaris SP.
17.	6.	51.35	59.46			50.33	24.46	25.03			17.	7.	24.25	- 3.12	$\alpha$ Herculis.
17.	27.	8.76				8.73	33.78	25.05			17.	27.	33.78	- 3.20	$\alpha$ Ophiuchi.

Error of Collimation = + 1".40

Level Error = + 0".36. From July 19 = + 0".19. From July 24 = + 0".01

Meridian Error by  $\delta$  Ursæ Minoris and Regulus July 21 = 1".45, and by Polaris SP and  $\alpha$  Herculis July 22 = 4".83, the respective allowances for clock-rate being 0".58 and 0".28. The mean of the two results is used from July 19.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
July 24	(a) ☉ 1 L.....	.....	11,5	26,0	39,9	.....	.....	8. 13. ....	+ 14,38	B.
	☉ 2 L.....	12,0	26,1	40,7	55,0	9,3	23,2	8. 16. 38,0		B.
July 25	(b) Polaris SP.....	.....	.....	53.28,2	1.57,5	10.13,3	.....	13. 26. 55,7	- 6. 13,75	B.
	α Coronæ Borealis....	42,1	56,9	12,4	27,3	43,1	57,7	15. 28. 13,0		B.
	(b) α Herculis.....	.....	.....	.....	54,6	9,1	22,2	17. 7. 36,0	- 20,86	B.
	α Ophiuchi.....	22,2	36,1	50,0	4,1	17,9	31,2	17. 27. 45,1		B.
	δ Ursæ Minoris.....	12. 7,8	15.54,7	.....	23.24,5	.....	30.59,6	18. 34. 46,0	+ 0,68	B.
July 26	δ Ursæ Minoris.....	12. 6,8	15.52,7	19.38,4	23.24,8	27.17,3	30.59,5	18. 34. 45,2		B.
July 27	(c) ☉ 2 L.....	.....	11,6	26,0	40,2	54,8	.....	8. 27. ....	+ 7,11	C.
	Arcturus.....	8,4	22,8	36,9	51,4	5,9	19,8	14. 8. 34,4		C.
	ε Bootis.....	43,8	59,3	14,4	29,5	45,0	59,8	14. 38. 15,1		C.
	α <sup>h</sup> Libræ.....	50,4	4,2	18,3	32,0	46,3	59,9	14. 42. 13,8		C.
	α <sup>h</sup> Capricorni.....	59,7	13,5	27,3	41,0	54,9	8,7	20. 9. 22,5		C.
July 28	(d) ☉ 1 L.....	37,6	51,7	6,1	20,5	.....	.....	8. 29. ....	+ 21,43	C.
	☉ 2 L.....	.....	.....	.....	.....	48,6	2,5	8. 32. 17,1	- 28,57	C.
	(c) α Orionis.....	15,8	29,5	42,6	56,5	.....	.....	5. 45. ....	+ 20,36	C.
July 29	Spica.....	31,6	45,2	58,5	12,5	26,1	39,7	13. 16. 53,5		C.
	Arcturus.....	5,0	19,4	33,4	47,9	2,4	16,5	14. 8. 30,8		C.
	ε Bootis.....	40,4	55,5	10,5	26,2	41,2	56,5	14. 38. 11,6		C.
	α <sup>h</sup> Libræ.....	47,3	1,3	14,8	29,0	43,0	56,9	14. 42. 10,9		C.
	β Ursæ Minoris.....	48. 3,7	48.55,0	49.45,3	50.37,7	51.29,1	52.20,5	14. 53. 11,7		C.
	(e) Pollux.....	9,2	24,5	.....	54,6	10,4	25,5	7. 35. 40,3	- 2,59	C.
July 30	(f) ☉ 2 L.....	.....	.....	.....	20,4	34,5	48,7	8. 40. 3,2	- 21,37	C.
	α Aquilæ.....	43,4	56,6	10,4	23,7	37,6	50,8	19. 43. 4,4		C.
July 31	(g) α Serpentis.....	.....	.....	.....	46,6	0,4	13,8	15. 36. 27,5	- 20,35	C.
	(c) δ Ophiuchi.....	.....	.....	.....	.....	35,1	48,6	16. 6. 2,2	- 26,98	C.
	(h) Pallas.....	50,2	.....	18,7	33,2	47,2	1,4	18. 23. 15,6	- 4,74	C.
	(i) α Aquilæ.....	41,7	55,2	8,6	22,5	36,1	49,4	19. 43. 3,3		C.
	β Aquilæ.....	10,6	24,0	37,4	51,0	4,5	18,2	19. 47. 31,6		C.
	3 Capricorni.....	.....	28,0	41,6	55,5	9,5	23,2	20. 6. 37,0	- 6,89	C.
	(k) α <sup>h</sup> Capricorni.....	.....	.....	20,8	34,7	48,6	2,5	20. 9. 16,4	- 13,79	C.
	α Orionis.....	11,1	24,7	38,0	51,7	5,3	18,8	5. 46. 32,5		C.
	(l) Pollux.....	.....	.....	.....	51,8	7,3	22,6	7. 35. 37,9	- 22,97	C.
	(m) ☉ 1 L.....	.....	22,5	36,6	50,4	4,8	19,5	8. 45. 33,4	- 7,08	C.
Aug. 1	☉ 2 L.....	21,6	35,9	49,7	4,2	.....	.....	8. 47. ....	+ 21,30	C.
	α Coronæ Borealis....	31,0	46,0	0,7	16,4	31,5	46,7	15. 28. 1,5		C.
	α Serpentis.....	4,5	18,0	31,4	45,3	58,6	12,3	15. 36. 25,8		C.
	δ Ophiuchi.....	39,6	53,3	6,5	20,2	33,5	47,0	16. 6. 0,4		C.
	Antares.....	14,4	29,4	44,0	59,3	14,3	29,2	16. 19. 44,1		C.
	(n) Saturn 1 L.....	43,2	.....	11,7	.....	40,8	55,4	16. 57. 9,8	- 5,75	C.
	Saturn 2 L.....	.....	0,4	.....	29,3	.....	.....	16. 56. ....	+ 14,39	C.
	(o) 39 Ophiuchi.....	54,5	8,8	23,4	38,6	53,4	8,0	17. 8. 22,4		C.
	(p) Pallas.....	17,3	31,5	45,6	0,0	14,2	28,4	18. 22. 42,7		C.
	* N.P.D. 68°. 11'....	26,7	41,5	55,6	10,5	24,8	39,3	18. 38. 53,7		C.
	α Aquilæ.....	40,2	53,5	7,0	21,0	34,3	48,1	19. 43. 1,6		C.
	β Aquilæ.....	9,0	22,4	35,7	49,4	3,0	16,7	19. 47. 30,2		C.
Aug. 2	Castor.....	52,7	8,8	24,5	40,5	56,4	12,3	7. 24. 28,2		C.
	(q) Procyon.....	32,4	45,8	58,8	12,5	26,3	39,8	7. 30. 53,4		C.
Aug. 3	(r) ☉ 1 L.....	50,4	4,3	18,4	32,5	46,7	0,7	8. 53. 14,8		C.
	☉ 2 L.....	3,0	17,2	31,0	45,3	59,5	13,7	8. 55. 27,8		C.
	(s) Venus 1 L.....	50,6	5,0	18,8	33,5	47,6	1,7	9. 6. 15,8		C.

ILLUMINATED END OF AXIS WEST. Order of wires, for stars above the pole, GFEDCBA.  
 From α Orionis July 21, ..... EAST. .... ARCEDEFG.  
 July 21, 4<sup>h</sup>. The Transit was reversed, and the Error of Collimation determined.  
 The Transit was levelled July 28, 21<sup>h</sup>, July 31, 7<sup>h</sup>, and Aug. 6, 6<sup>h</sup>.

(a) Cloudy and very perplexing. (b) Wires lost by clouds. (c) Cloudy. (d) Very cloudy: 2 L. without dark glass. (e) Extremely cloudy and doubtful. (f) Clouded till the 4th wire. (g) Hurried; bad observation. (h) So faint as to be all guess and doubt. (i) Not satisfactory. (j) Delayed by the preceding observation. (k) Clear at the 4th wire. (l) Cloudy at times with much vibration. In the observation of 1 L. the wires could scarcely be seen on account of a great quantity of diffused light. Wire V of this limb was written down 3,8. (m) Confused and bad: disturbed by noise in the court. (n) Unsatisfactory. Double star, the larger taken. (o) Counting found 1' in advance: all except 1st wire have been diminished 1'. (p) Very unsteady. (q) Great vibration: observation of 1 L. injured by diffused light as on Aug. 1. (r) Unsteady and ill-defined; so near the Sun.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	S.	"	S.	S.	S.	S.	S.	A. M. S.	S.	
8. 13. 40.18 8. 15. 54.90		- 1.90	47.57			1.59	27.19	8. 15. 15.30		☉'s center.
13. 1. 54.92	51.62		48.63	17.09	28.46		28.78	1. 2. 18.27	- 7.20	Polaris SP.
15. 27. 27.50	27.61		27.55	57.56	30.01			15. 27. 57.36	- 2.63	α Coronæ Bor.
17. 6. 54.61			54.63	24.33	29.70			17. 7. 24.54	- 3.09	α Herculis.
17. 27. 3.80	8.90		3.82	33.77	29.95			17. 27. 33.76	- 3.19	α Ophiuchi.
18. 23. 27.20	28.70		29.90	0.05	30.15			18. 23. 59.90	- 4.71	δ Ursæ Minoris.
18. 23. 26.39	27.89		29.09	59.77	30.68		30.37	18. 24. 0.68	- 4.43	δ Ursæ Minoris
8. 27. 40.26			40.29			1.72	31.81	8. 28. 12.71		☉ 2 L.
14. 7. 51.37	51.47		51.40	24.24	32.84			14. 8. 24.22	- 2.26	Arcturus.
14. 37. 29.56			29.61	2.40	32.79			14. 38. 2.47	- 2.41	α Bootis.
14. 41. 32.13			32.11	4.95	32.84			14. 42. 4.97	- 2.63	α <sup>1</sup> Libræ.
20. 8. 41.08			41.06	14.39	33.33			20. 9. 14.31	- 3.98	α <sup>1</sup> Capricorn.
8. 29. 20.40 8. 31. 34.16 5. 45. 56.46			27.31				33.53	8. 31. 1.45		☉'s center.
		- 12.90	56.11	32.15	36.04	1.74	35.51	5. 46. 32.04	- 1.45	α Orionis.
13. 16. 12.44			11.82	48.44	36.62			13. 16. 48.29	- 2.00	Spica.
14. 7. 47.92			47.76	24.21	36.45			14. 8. 24.29	- 2.23	Arcturus.
14. 57. 25.99			25.98	2.37	36.39			14. 58. 2.55	- 2.38	α Bootis.
14. 41. 29.03	29.16		28.33	4.93	36.60			14. 42. 4.90	- 2.61	α <sup>1</sup> Libræ.
14. 50. 37.57	38.89		40.14	16.88	36.70			14. 51. 16.72	- 1.91	β Ursæ Minoris.
7. 34. 54.83			54.83	32.49	37.66	1.63	37.24	7. 35. 32.58	- 1.52	Pollux.
8. 39. 20.33 19. 42. 23.84			20.13					8. 39. 57.96		☉ 2 L.
			23.50	2.17	38.67			19. 43. 2.08	- 3.54	α Aquilæ.
15. 35. 46.72			46.33	26.27	39.94	1.55	38.88	15. 36. 26.22	- 2.74	α Serpentis.
16. 5. 21.65			21.35	1.12	39.77			16. 6. 1.27	- 3.00	δ Ophiuchi.
18. 21. 32.98			32.77					18. 23. 12.84		Pallas.
19. 42. 22.40			22.04	2.17	40.13			19. 43. 2.19	- 3.54	α Aquilæ.
19. 46. 51.04			50.65	30.85	40.20			19. 47. 30.81	- 3.58	β Aquilæ.
20. 6. 55.58			54.91					20. 7. 35.09	- 4.00	γ Capricorn.
20. 8. 34.81			34.15	14.42	40.27			20. 9. 14.33	- 4.01	α <sup>1</sup> Capricorn.
5. 45. 51.73			51.35	32.22	40.87	1.56	40.39	5. 46. 32.12	- 1.52	α Orionis.
7. 34. 51.93			51.90	32.53	40.63			7. 35. 32.78	1.56	Pollux.
8. 44. 50.79 8. 47. 4.15			57.24					8. 46. 38.20		☉'s center.
15. 27. 16.26			16.20	57.45	41.25			15. 27. 57.59	- 2.52	α Coronæ Bor.
15. 35. 45.13			44.74	26.26	41.52			15. 36. 26.14	- 2.73	α Serpentis.
16. 5. 20.07			19.77	1.10	41.33			16. 6. 1.20	- 2.98	δ Ophiuchi.
16. 18. 59.25			58.45	30.90	41.64			16. 19. 59.80	3.45	Antares.
16. 56. 26.43										
16. 56. 29.24			27.02					16. 57. 8.51		Saturn's center.
17. 7. 38.45			37.58					17. 8. 19.09	- 3.73	39 Ophiuchi.
18. 21. 59.95			59.74					18. 22. 41.32		Pallas.
18. 38. 10.40			10.13					18. 38. 51.73	- 3.21	α N.P.D. 68° 11'.
19. 42. 20.51			20.45	2.18	41.73			19. 43. 2.12	3.55	α Aquilæ.
19. 46. 49.49			49.10	30.85	41.75			19. 47. 30.77	- 3.58	β Aquilæ.
7. 24. 40.48 7. 30. 12.71			40.55	24.59	44.04	1.62	43.65	7. 24. 24.70	1.09	Castor.
			12.33	56.60	44.27			7. 30. 56.49	- 1.25	Procyon.
8. 52. 32.54 8. 54. 45.36			38.73					8. 54. 22.97		☉'s center.
9. 5. 43.25			43.08					9. 6. 17.34		Venus 1 L.

Error of Collimation = + 1".60 From α Orionis July 28 = 0".65

Level Error = + 0".01 From α Orionis July 28 = + 6".33. From July 31 = + 5".84. From Aug. 2 = + 6".37.

Meridian Error by δ Ursæ Minoris and α Ophiuchi July 25 = 2".08; by Polaris SP and α Coronæ Borealis July 25 = + 2".80; and by δ Ursæ Minoris July 26 compared with Arcturus July 27 = 0".82, the respective allowances for clock-rate being 0".07, 0".17, and 1".44. The mean of the three results is used from July 24.

Meridian Error from α Orionis July 28 by Polaris SP, Polaris, and Polaris SP Aug 3 and 4. The result given by α<sup>1</sup> Libræ and β Ursæ Minoris July 29 is - 13".50, shewing that no great change took place between that day and Aug. 3. For an account of the great change of Level and Meridian Errors at the reversion, see the Introduction.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.		
Aug. 3	Polaris SP.....	37. 6,0	45.31,3	53.51,8	2. 8,5	10.38,0	...	13. 27. 10,4	+ 2. 46,30	C.
	(a) Spica.....	23,7	37,0	50,5	4,6	18,2	31,7	13. 16. 45,4		C.
	(b) $\gamma$ 1 L.....	51,3	5,5	19,5	33,8	48,1	2,3	13. 21. 16,5		C.
	$\epsilon$ Bootis.....	32,4	47,5	2,5	17,9	33,1	48,4	14. 38. 3,6		C.
	Pallas.....	...	28,0	42,3	56,5	10,6	24,7	18. 21. 39,0	- 7,09	C.
	* N.P.D. 70°. 13'.....	36,7	51,0	4,9	19,5	33,8	48,1	18. 25. 2,3		C.
	* N.P.D. 68°. 11'.....	23,6	38,0	52,3	7,1	21,3	36,0	18. 38. 50,6		C.
	$\alpha$ Aquilæ.....	36,7	50,6	3,7	17,6	31,0	44,6	19. 42. 58,5		C.
	(c) $\beta$ Aquilæ.....	5,4	19,3	32,5	46,3	59,6	13,3	19. 47. 26,9		C.
	$\alpha^*$ Capricorni.....	48,7	2,2	16,0	30,0	43,4	57,5	20. 9. 11,6		C.
	(d) Polaris.....	...	44.27,0	52.36,5	1.10,7	9.29,6	17.51,7	1. 26. 13,6	- 4. 9,70	C.
	$\alpha$ Orionis.....	6,4	19,8	33,2	46,8	0,5	14,0	5. 46. 27,5		C.
	(e) Pollux.....	...	16,3	31,4	46,7	2,5	17,6	7. 35. 32,8	- 7,63	C.
Aug. 4	$\odot$ 2 L.....	52,7	7,1	20,8	35,1	49,4	3,7	8. 59. 17,3		G.
	Polaris SP.....	37. 7,0	45.28,5	53.48,5	2. 8,3	10.37,2	18.46,5	13. 27. 6,7		C.
	$\gamma$ 1 L.....	11,3	25,7	40,1	54,8	9,5	24,0	14. 9. 38,6		C.
	$\epsilon$ Bootis.....	30,6	46,0	0,8	16,3	31,4	46,6	14. 38. 2,0		C.
	$\alpha^*$ Libræ..... (faint)	...	51,4	5,0	19,3	33,3	47,2	14. 42. 1,2	- 6,96	C.
	$\alpha$ Serpentis.....	59,6	13,3	26,5	40,2	53,8	7,4	15. 36. 21,0		C.
	Antares.....	9,5	24,4	39,2	54,4	9,2	24,3	16. 19. 39,2		C.
	(f) Pallas.....	44,0	58,2	12,1	26,3	40,4	54,5	18. 21. 8,8		C.
	* N.P.D. 70°. 13'.....	35,1	49,4	3,5	17,7	32,3	46,5	18. 25. 0,6		C.
	* N.P.D. 38°. 21'.....	...	...	42,2	4,3	25,7	47,6	18. 31. 9,2	- 21,65	C.
	* N.P.D. 68°. 11'.....	21,8	36,5	50,6	5,4	19,6	34,3	18. 38. 48,9		C.
	$\alpha$ Aquilæ.....	35,2	49,0	2,1	15,8	29,5	43,1	19. 42. 56,6		C.
	$\beta$ Aquilæ.....	4,4	17,6	31,0	44,8	58,1	11,8	19. 47. 25,3		C.
	$\alpha^*$ Capricorni.....	47,2	1,0	14,6	28,5	42,3	56,1	20. 9. 10,0		C.
	$\theta$ Cephei.....	41,6	11,0	39,3	9,1	38,0	7,4	20. 27. 36,3		C.
	* N.P.D. 25°. 2'.....	0.20,6	0.52,2	1.23,7	1.56,0	2.28,0	2.59,9	21. 3. 31,1		C.
	* N.P.D. 76°. 43'.....	53,5	7,0	20,4	34,6	48,4	2,4	21. 9. 16,2		C.
	$\beta$ Aquarii.....	45,1	58,6	12,0	25,7	39,1	52,7	21. 23. 6,3		C.
Aug. 5	(g) $\odot$ 1 L.....	29,8	44,2	57,6	11,7	26,2	39,6	9. 0. 54,4		C.
	$\odot$ 2 L..... (Temp. 60°)	42,0	56,2	10,1	24,4	38,5	52,5	9. 3. 6,6		C.
	Venus 1 L.....	...	58,8	12,7	27,3	41,4	55,6	9. 16. 9,7	- 7,05	C.
	Arcturus.....	53,7	8,1	22,2	36,6	51,0	5,3	14. 8. 19,5		C.
	$\epsilon$ Bootis.....	29,0	44,4	59,3	14,7	30,0	45,1	14. 38. 0,4		C.
	$\alpha^*$ Libræ.....	36,0	50,0	3,5	17,7	31,7	45,6	14. 41. 59,7		C.
	Antares.....	...	23,0	37,6	52,7	7,9	22,7	16. 19. 37,7	- 7,47	C.
	(b) Saturn 1 L.....	11,5	...	40,0	...	8,8	...	16. 56. 37,8	+ 0,03	C.
	Saturn 2 L.....	...	28,7	...	57,5	...	26,4	16. 56. ....	- 0,04	C.
	39 Ophiuchi.....	48,1	2,8	17,3	32,2	47,0	1,8	17. 8. 16,4		C.
	Piazzi XVII. 64.....	...	...	31,8	47,3	2,6	18,0	17. 12. 33,5	- 15,36	C.
	(h) $\rho$ Herculis.....	34,1	51,2	7,7	25,0	41,8	58,5	17. 18. 15,7		C.
	$\alpha$ Ophiuchi.....	4,7	18,5	32,1	46,0	59,8	13,6	17. 27. 27,4		C.
	* N.P.D. 48°. 12'.....	...	...	...	24,6	42,6	0,7	17. 46. 18,9	- 27,10	C.
	* N.P.D. 70°. 13'.....	33,5	48,0	1,8	16,3	30,7	45,1	18. 24. 59,0		C.
	* N.P.D. 68°. 11'.....	20,5	35,0	49,2	4,0	18,4	33,0	18. 38. 47,5		C.
	$\alpha$ Aquilæ.....	33,6	47,3	0,6	14,5	28,0	41,6	19. 42. 55,1		C.
	(i) $\beta$ Aquilæ.....	2,6	16,4	29,5	43,4	56,6	10,3	19. 47. 23,6		C.
	$\alpha^*$ Capricorni.....	45,6	59,5	13,0	27,1	40,8	54,7	20. 9. 8,5		C.
	$\theta$ Cephei.....	24.40,6	25. 9,9	25.38,2	26. 7,6	26.36,6	27. 5,8	20. 27. 35,0		C.
	(k) * N.P.D. 25°. 2'.....	0.18,3	0.50,9	1.21,8	1.54,2	2.26,3	2.58,0	21. 3. 29,7		C.
	(l) * N.P.D. 76°. 52'.....	...	...	...	15,7	29,3	43,3	21. 8. 57,2	- 20,75	C.
	$\beta$ Aquarii.....	43,7	57,4	10,5	24,2	37,9	51,4	21. 23. 4,8		C.
	Procyon.....	27,7	41,3	54,3	8,2	21,6	35,2	7. 30. 48,6		C.
	Pollux.....	58,3	13,5	28,6	44,1	59,3	14,7	7. 35. 30,0		C.
Aug. 6	(m) $\odot$ 1 L.....	18,3	32,4	46,5	0,8	14,8	28,9	9. 4. 42,8		C.
	(n) $\odot$ 2 L..... (Temp. 60°, 4)	30,7	45,0	58,9	13,1	27,0	40,9	9. 6. 55,2		C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

(a) Hurried: the observation has been increased 1<sup>s</sup>. (b) Good. (c) Wire I was written down hurriedly 4,4.  
 (d) Just before sun-rise: flaring at first, but afterwards improved. (e) Very faint and unsteady. (f) Very doubtful. Wire II was written 57,2 and is altered by a consideration of the intervals. (g) This limb very bad: wires obscured by stray light as on Aug. 1 and 3. (h) Double-star: larger taken. (i) Confused. (k) Very faint and doubtful. (l) Hurried and very bad. (m) The reefs were let down to get rid of the stray light; but a worse effect was produced. (n) Confused at wire VI.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET
A. M. S.	A.	"	P.	A.	P.	P.	P.	A. M. S.	P.	
13. 2. 10.63	59.83	- 12.90	39.55	23.49	43.94	1.62	43.65	1. 2. 24.08	- 13.99	Polaris SP.
13. 16. 4.44			3.83	48.39	44.56			13. 16. 48.37	- 1.95	Spica.
13. 20. 33.86			33.19					13. 21. 17.74		γ 1 L.
14. 37. 17.92			17.91	2.29	44.38			14. 38. 2.55	- 2.30	ε Bootis.
18. 20. 56.43			56.26					18. 21. 41.14		Pallas.
18. 24. 19.48			19.32					18. 25. 4.21	- 3.20	* N.P.D. 70°. 13'
18. 38. 6.99			6.85					18. 38. 51.75	- 3.21	* N.P.D. 68°. 11'
19. 42. 17.53			17.19	2.18	44.99			19. 43. 2.17	- 3.55	α Aquilæ.
19. 46. 46.19			45.83	30.86	45.03			19. 47. 30.82	- 3.59	β Aquilæ.
20. 8. 29.91			29.26	14.44	45.18			20. 9. 14.27	- 4.03	α Capricorni.
1. 1. 8.48	19.81		38.72	23.88	45.16	1.57	45.28	1. 2. 24.07	- 13.99	Polaris.
5. 45. 46.89			46.54	32.30	45.76			5. 46. 82.20	- 1.60	α Orionis.
7. 34. 46.92			46.93	32.59	45.66			7. 35. 32.71	- 1.62	Pollux
8. 38. 35.16			34.94					8. 59. 20.80		☉ 2 L.
13. 2. 8.96	58.16		37.88	24.27	46.39			1. 2. 24.01	- 14.38	Polaris SP.
14. 8. 54.86			54.09					14. 9. 40.29		γ 1 L.
14. 37. 16.23			16.24	2.27	46.03			14. 38. 2.48	- 2.28	ε Bootis.
14. 41. 19.27			18.57	4.86	46.29			14. 42. 4.81	- 2.54	α Libræ.
15. 35. 40.23			39.89	26.22	46.33			15. 36. 26.19	- 2.69	α Serpentis.
16. 18. 54.51			53.42	39.95	46.53			16. 19. 39.76	- 3.41	Antares.
18. 20. 26.33			26.17					18. 21. 12.65		Pallas.
18. 24. 17.87			17.72					18. 25. 4.20	- 3.19	* N.P.D. 70°. 13'
18. 30. 4.15			4.74					18. 30. 51.23	- 2.80	* N.P.D. 38°. 21'
18. 38. 5.30			5.16					18. 38. 51.66	- 3.20	* N.P.D. 68°. 11'
19. 42. 15.90			15.56	2.18	46.62			19. 43. 2.13	- 3.55	α Aquilæ.
19. 46. 44.71			44.35	30.86	46.51			19. 47. 30.92	- 3.59	β Aquilæ.
20. 8. 28.53			27.88	14.44	46.56			20. 9. 14.48	- 4.03	α Capricorni.
20. 26. 8.96			10.09					20. 26. 56.71	- 3.04	θ Cephei.
21. 1. 55.93			57.26					21. 2. 43.91	- 3.13	* N.P.D. 25°. 2'
21. 8. 34.64			34.37					21. 9. 21.03	- 3.51	* N.P.D. 76°. 43'
21. 22. 25.64			25.07	11.82	46.75			21. 23. 11.74	- 3.84	β Aquarii.
9. 0. 11.92						1.47	46.85	9. 2. 5.31		☉'s center
9. 2. 24.33			17.91					9. 16. 14.40		Venus 1 L.
9. 15. 27.20			26.98					14. 8. 24.18	- 2.14	Arcturus.
14. 7. 39.63			36.47	24.12	47.65			14. 38. 2.44	- 2.27	ε Bootis.
14. 37. 14.70			14.09	2.26	47.57			14. 42. 4.80	- 2.53	α Libræ.
14. 41. 17.75			17.05	4.85	47.80			16. 19. 39.76	- 3.40	Antares
16. 18. 52.80			51.91	39.94	48.03			16. 56. 43.10		Saturn's center.
16. 55. 54.55								17. 8. 19.27	- 3.70	39 Ophiuchi.
16. 55. 57.49			55.21					17. 12. 35.19	- 2.83	Piazzi XVII 64.
17. 7. 32.23			31.37					17. 18. 12.94	- 2.74	ρ Herculis
17. 11. 47.28			47.20					17. 27. 33.66	- 3.11	α Ophiuchi.
17. 17. 24.86			25.03					17. 46. 12.84	- 2.77	* N.P.D. 18°. 12'
17. 26. 46.01			45.74	33.69	47.95			18. 25. 4.16	- 3.19	* N.P.D. 70°. 13'
17. 45. 24.60			24.90					18. 38. 51.79	- 3.20	* N.P.D. 68°. 11'
18. 24. 16.34			16.18					19. 43. 2.11	- 3.55	α Aquilæ.
18. 38. 5.94			5.80					19. 47. 30.90	- 3.59	β Aquilæ.
19. 42. 14.39			14.05	2.18	48.13			20. 9. 14.46	- 4.04	α Capricorni.
19. 46. 43.20			42.84	30.86	48.02			20. 26. 56.90	- 3.04	θ Cephei.
20. 8. 27.03			26.38	14.45	48.07			21. 2. 43.64	- 3.13	* N.P.D. 25°. 2'
20. 26. 7.67			8.80					21. 9. 3.49	- 3.52	* N.P.D. 76°. 52'
21. 1. 54.17			55.50					21. 23. 11.86	- 3.85	β Aquarii
21. 8. 15.72			15.35					7. 30. 56.49	- 1.30	Procyon
21. 22. 24.27			23.70	11.83	48.13	1.46	48.28	7. 35. 32.81	- 1.66	Pollux
7. 30. 8.13			7.75	56.65	48.90					
7. 34. 44.07			44.07	32.63	48.56					
9. 4. 0.64								9. 5. 55.42		☉'s center.
9. 6. 12.97			6.39							

Error of Collimation = - 0.65

Level Error = + 6.37



Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Aug. 6	Venus 1 L.....	40,0	54,3	8,2	22,6	36,7	50,9	9. 21. 5,0		C.
	Polaris SP.....	37. 9,8	45.29,0	53.50,2	2. 9,5	10.40,3	18.49,2	13. 27. 11,0		C.
	(a) α Coronæ Borealis.....	23,0	38,2	53,0	8,3	23,4	38,5	15. 27. 53,7		C.
	α Serpentis.....	56,7	10,4	23,5	37,3	50,8	4,5	15. 36. 18,0		C.
	(b) δ 1 L.....	18,2	33,5	48,6	4,3	19,6	35,2	15. 51. 50,5		C.
	δ Ophiuchi.....	31,9	45,3	58,5	12,4	25,8	39,3	16. 5. 52,8		C.
	σ Scorpii.....	58,8	13,6	28,4	45,4	58,2	13,1	16. 11. 27,9		C.
	Antares.....	6,4	21,5	36,1	51,4	6,3	21,4	16. 19. 36,4		C.
	(c) Saturn 1 L.....	4,5	.....	33,0	.....	2,4	.....	16. 56. 30,9	+ 0,03	C.
	Saturn 2 L.....	.....	21,7	.....	50,6	.....	19,4	16. 56. ....	- 0,04	C.
	(d) 31 Scorpii.....	13,5	28,8	43,1	58,6	13,4	28,5	17. 7. 43,6		C.
	ρ Herculis.....	32,7	49,6	6,1	23,5	40,5	57,3	17. 13. 14,1		C.
	α Ophiuchi.....	3,3	17,2	30,6	44,5	58,3	12,3	17. 27. 26,0		C.
	(e) Pallas.....	.....	1,7	15,8	30,1	44,4	.....	18. 20. 12,9	- 2,81	C.
	(c) * N.P.D. 70°. 13'.....	32,2	46,3	0,4	15,0	28,8	43,3	18. 24. 57,7		C.
	* N.P.D. 38°. 23'.....	28.16,8	28.38,6	29. 0,0	29.21,9	29.43,5	30. 5,4	18. 30. 27,0		C.
	* N.P.D. 68°. 11'.....	19,0	33,5	47,8	2,5	16,9	31,3	18. 38. 45,8		C.
	ο Herculis.....	30,0	44,6	58,8	13,7	28,3	42,7	18. 47. 57,3		C.
	(f) α Aquilæ.....	32,2	45,8	59,0	13,0	26,6	40,3	19. 42. 53,6		C.
	β Aquilæ.....	1,1	14,5	27,9	41,8	55,2	8,7	19. 47. 22,2		C.
	θ Cephei.....	24.38,7	25. 8,1	25.36,5	26. 6,3	26.35,3	27. 4,4	20. 27. 33,5		C.
	(g) * N.P.D. 25°. 2'.....	0.16,6	0.49,0	1.20,0	1.52,4	.....	.....	21. 3. 27,9	+ 19,10	C.
	* N.P.D. 76°. 52'.....	32,5	46,6	0,0	13,9	27,8	41,8	21. 8. 55,5		C.
	(h) β Aquarii.....	42,2	55,8	9,1	25,0	36,3	50,0	21. 23. 3,5		C.
	Procyon.....	26,4	39,8	53,0	6,7	20,3	33,7	7. 30. 47,4		C.
	Pollux.....	56,5	12,0	27,0	42,6	57,8	13,2	7. 35. 28,4		C.
Aug. 7	(i) ☉ 1 L.....	6,8	20,7	34,6	48,8	2,8	17,3	9. 8. 31,3		C.
	☉ 2 L.....	18,8	33,0	46,7	1,1	15,0	29,2	9. 10. 43,2		C.
	(k) Venus 1 L.....	34,6	48,5	2,4	16,7	30,5	44,8	9. 25. 59,0		C.
	α Coronæ Borealis.....	21,5	36,5	51,4	6,7	22,0	37,1	15. 27. 52,2		C.
	α Serpentis.....	55,1	8,7	22,0	35,8	49,3	2,8	15. 36. 16,4		C.
	δ Ophiuchi.....	30,4	43,8	57,0	10,7	24,2	37,6	16. 5. 51,1		C.
	σ Scorpii.....	57,2	12,1	26,7	41,8	56,6	11,5	16. 11. 26,4		C.
	(l) Antares.....	5,0	19,8	34,6	49,7	5,0	19,7	16. 19. 34,6		C.
	(m) δ 1 L.....	.....	.....	.....	10,6	26,4	41,8	16. 45. 57,8	- 23,59	C.
	(n) Saturn 1 L.....	58,1	.....	26,7	.....	55,8	.....	16. 56. 24,6	+ 0,03	C.
	Saturn 2 L.....	.....	15,4	.....	44,2	.....	13,2	16. 56. ....	- 0,04	C.
	(o) λ <sup>1</sup> Ophiuchi.....	59,5	14,7	29,4	44,5	59,5	14,6	17. 5. 29,6		C.
	(p) 39 Ophiuchi.....	44,7	59,8	14,2	29,3	43,8	58,7	17. 8. 13,5		C.
	(q) θ Ophiuchi.....	40,5	55,6	9,9	25,0	39,8	54,6	17. 12. 9,4		C.
	* N.P.D. 71°. 50'.....	51,2	5,3	19,1	33,6	47,8	1,7	18. 20. 15,8		C.
	* N.P.D. 70°. 13'.....	30,7	45,0	59,0	13,5	27,7	42,2	18. 24. 56,1		C.
	* N.P.D. 38°. 23'.....	.....	37,3	58,5	20,6	42,1	3,8	18. 30. 25,5	- 10,81	C.
	* N.P.D. 68°. 11'.....	17,5	32,0	46,1	0,8	15,4	29,9	18. 38. 44,4		C.
	α Aquilæ.....	30,6	44,2	57,6	11,4	25,1	38,6	19. 42. 52,3		C.
	β Aquilæ.....	59,6	13,3	26,3	40,2	53,6	7,4	19. 47. 20,9		C.
	α <sup>1</sup> Capricorni.....	42,5	56,6	9,9	24,0	37,8	51,6	20. 9. 5,5		C.
	(r) δ Ursæ Minoris SP...	11.58,0	15.46,0	19.32,0	23.18,0	27. 6,0	30.50,0	6. ....	+ 1. 53,04	C.
Aug. 8	(s) ☉ 1 L.....	.....	8,4	22,3	36,2	50,3	.....	9. 11. ....	+ 7,05	C.
	☉ 2 L.....	.....	.....	.....	48,3	2,3	16,4	9. 14. ....	- 14,07	C.
	(t) Venus 1 L..... (Temp. 65°)	27,4	41,4	55,3	9,3	23,5	37,6	9. 30. ....	+ 7,03	C.
	δ Ophiuchi.....	28,7	42,2	55,4	9,1	22,5	36,0	16. 5. 49,5		C.
	Antares.....	3,3	18,4	32,9	48,2	3,2	18,1	16. 19. 33,1		C.
	(u) ι Ophiuchi.....	.....	.....	.....	.....	46,5	0,2	16. 37. 13,7	- 26,93	C.
	21 Ophiuchi.....	49,0	2,5	15,8	29,4	42,8	56,2	16. 45. 9,7		C.
	30 Ophiuchi.....	8,5	22,0	35,2	49,0	2,4	15,8	16. 52. 29,5		C.
	(v) Saturn 1 L.....	51,7	.....	20,4	.....	.....	3,8	16. 56. 18,4	- 3,58	C.
	Saturn 2 L.....	.....	9,2	.....	37,7	52,3	.....	16. 55. ....	+ 4,78	C.
	λ <sup>1</sup> Ophiuchi.....	57,7	12,9	27,5	42,8	57,8	12,7	17. 5. 27,8		C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

(a) Beautifully steady. (b) Very steady. (c) The seconds were not taken from the clock: the counting being found 3 in arrear, the observation has been altered accordingly. (d) In day-light: extremely faint and doubtful. (e) Very faint and uncertain. (f) Blazing extraordinarily. (g) The eye-glass became misty. (h) Very unsteady. (i) This limb had. (k) Ill-defined and vibrating. (l) Unsatisfactory. (m) Heavily clouded, worth little. (n) Good. (o) λ<sup>1</sup> indicates the preceding star. (p) Rather hurried. The counting, not being taken from the clock, was corrected after the observation. (q) Wire 111 was written down 10,9 and is altered conjecturally. (r) So faint as to be scarcely discernible: no attempt was made to guess at the fraction of a second. (s) Extremely cloudy and perplexing. (t) Clouds rapidly traversing the field. (u) Faint from day-light. Counting found 21 in advance and corrected. (v) Confused.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET
A. M. A.	A.		A.	A.	A.	A.	A.	A. M. A.	A.	
9.20.22.53		- 12.90	22.31			1.46	48.28	9.21.11.16		Venus 1 L.
13.2.11.29			40.21	25.88	45.67			1.2.29.28	- 15.00	Polaris SP.
15.27.8.30			8.27	57.37	49.10			15.27.57.49	- 2.44	$\alpha$ Coronæ Bor.
15.35.37.32			36.96	26.20	49.24			15.36.26.19	- 2.67	$\alpha$ Serpentis.
15.51.4.27			3.35					15.51.52.60		$\gamma$ 1 L.
16.5.12.28			12.01	1.05	49.04			16.6.1.27	- 2.93	$\delta$ Ophiuchi.
16.10.43.34			42.46					16.11.31.72	- 3.31	$\sigma$ Scorpii.
16.18.51.35			50.46	39.93	49.47			16.19.39.73	- 3.39	Antares.
16.55.47.73										
16.55.50.53			48.32					16.56.37.63		Saturn's center.
17.6.58.50			57.61					17.7.46.93	- 3.75	$\beta$ Scorpii.
17.17.23.40			23.56					17.18.12.89	- 2.73	$\rho$ Herculis.
17.26.44.60			44.33	33.68	49.35			17.27.33.67	- 3.10	$\alpha$ Ophiuchi.
18.19.30.17			29.97					18.20.19.37		Pallas.
18.24.14.81			14.65					18.25.4.05	- 3.18	* N.P.D. 70°. 13'
18.29.21.89			22.48					18.30.11.88	- 2.76	* N.P.D. 38°. 23'
18.38.2.40			2.26					18.38.51.67	- 3.19	* N.P.D. 68°. 11'
18.47.13.63			13.49					18.48.2.91	- 3.21	$\theta$ Herculis.
19.42.12.93			12.59	2.19	49.60			19.43.2.07	- 3.56	$\alpha$ Aquilæ.
19.46.41.63			41.27	30.86	49.59			19.47.30.75	- 3.59	$\beta$ Aquilæ.
20.26.6.11			7.24					20.26.56.76	- 3.03	$\theta$ Cephei.
21.1.52.28			53.61					21.2.43.17	- 3.14	* N.P.D. 25°. 2'
21.8.14.01			13.74					21.9.3.31	- 3.53	* N.P.D. 76°. 52'
21.22.22.84			22.27	11.85	49.58			21.23.11.85	- 3.87	$\beta$ Aquarii.
7.30.6.76			6.38	56.67	50.29	1.53	49.78	7.30.56.64	- 1.32	Procyon.
7.34.42.50			42.51	32.65	50.14			7.35.32.77	- 1.68	Pollux.
9.7.48.90			54.74					9.9.15.10		$\odot$ 's center.
9.10.1.00										
9.25.16.64			16.43					9.26.6.81		Venus 1 L.
15.27.6.77			6.74	57.36	50.62			15.27.57.50	- 2.43	$\alpha$ Coronæ Bor.
15.35.55.73			35.37	26.18	50.81			15.36.26.14	- 2.65	$\alpha$ Serpentis.
16.5.10.68			10.41	1.04	50.63			16.6.1.21	- 2.92	$\delta$ Ophiuchi.
16.10.41.75			40.87					16.11.31.68	- 3.30	$\sigma$ Scorpii.
16.18.49.77			48.88	39.92	51.04			16.19.39.70	- 3.38	Antares.
16.45.10.56			9.62					16.46.0.47		$\gamma$ 1 L.
16.55.41.33										
16.55.44.23			41.97					16.56.32.83		Saturn's center
17.4.44.54			43.65					17.5.31.52	- 3.68	$\lambda^1$ Ophiuchi.
17.7.29.15			28.29					17.8.19.16	- 3.69	$\beta$ Ophiuchi.
17.11.24.97			24.09					17.12.14.97	- 3.72	$\theta$ Ophiuchi
18.19.33.50			33.30					18.20.24.25	- 3.18	* N.P.D. 71°. 50'
18.24.13.46			13.30					18.25.4.25	- 3.17	* N.P.D. 70°. 13'
18.29.20.49			21.08					18.30.12.04	- 2.75	* N.P.D. 38°. 23'
18.38.0.87			0.73					18.38.51.70	- 3.19	* N.P.D. 68°. 11'
19.42.11.40			11.06	2.19	51.13			19.43.2.10	- 3.56	$\alpha$ Aquilæ.
19.46.40.18			39.82	30.87	51.05			19.47.30.86	- 3.60	$\beta$ Aquilæ.
20.8.23.98			23.33	14.46	51.13			20.9.14.39	- 4.05	$\alpha^1$ Capricorn.
6.23.18.04	13.31	- 11.60	4.75	56.35	51.60	1.49	51.34	18.23.56.49	- 1.01	$\delta$ Ursa Min SP
9.11.36.35			42.16					9.13.34.97		$\odot$ 's center
9.13.48.26										
9.30.9.45			9.30					9.31.1.23		Venus 1 L
16.5.9.06	9.36		8.85	1.03	52.18			16.6.1.19	- 2.91	$\delta$ Ophiuchi
16.18.48.17			47.37	39.91	52.54			16.19.39.72	- 3.37	Antares.
16.36.35.20			32.83					16.37.25.20	- 3.01	$\lambda$ Ophiuchi
16.42.29.35			28.98					16.43.21.36	- 3.03	$\epsilon$ 1 Ophiuchi
16.51.48.92			48.47					16.52.40.86	- 3.18	$\beta$ Ophiuchi
16.55.34.99			35.70					16.56.28.09		Saturn's center
16.55.37.85										
17.4.42.74			41.94					17.5.34.34	- 3.68	$\lambda^1$ Ophiuchi.

Error of Collimation = - 0".65.

Level Error = + 0".37.

Meridian Error from  $\delta$  Ursa Minoris SP Aug 7, by  $\delta$  Ursa Minoris SP Aug 7 and  $\delta$  Ophiuchi Aug 8, allowing 0".34 for clock-rate. By a dissection of Grantchester cross on Aug 6, the Meridian Error was very nearly the same as after the reversion of July 28.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	A. M. S. S.		
Aug. 8	A.S.C. 1974.....				33,1	47,7	2,5	17. 8. 17,3	- 22,10	C.
	$\theta$ Ophiuchi.....	38,9	53,6	8,2	23,4	38,1	53,0	17. 12. 7,9		C.
	(a) $\rho$ Herculis.....	29,6	46,7	3,1	20,2	37,4	54,1	17. 18. 11,1		C.
	$\alpha$ Ophiuchi.....	0,2	14,2	27,5	41,6	55,4	9,2	17. 27. 23,0		C.
	(u) $\gamma$ 1 L.....	50,2	5,6	21,4	37,4	53,3	9,1	17. 41. 24,7		C.
	$\gamma^2$ Sagittarii.....	57,5	13,2	28,4	44,5	0,0	15,4	17. 55. 31,1		C.
	$\lambda$ Sagittarii.....		48,3	3,1	18,1	32,9	47,8	18. 18. 2,8	- 7,44	C.
	(b) * N.P.D. 71°. 50'.....			17,7	32,2	46,1	0,5	18. 20. 14,4	- 14,14	C.
	* N.P.D. 38°. 21'.....	53,3	14,8	36,0	58,2	19,8	41,5	18. 31. 3,4		C.
	* N.P.D. 68°. 11'.....	15,7	30,4	44,5	59,4	13,9	28,4	18. 38. 42,9		C.
	(c) $\alpha$ Aquilæ.....	29,3	42,7	56,0	10,2	23,5	37,2	19. 42. 50,7		C.
	$\beta$ Aquilæ.....	58,1	11,6	25,0	38,4	51,8	5,5	19. 47. 19,2		C.
	(d) $\alpha^2$ Capricorni.....	41,0	54,8	8,3	22,5	36,2	50,1	20. 9. 3,9		C.
Aug. 9	(e) $\lambda$ Sagittarii.....	32,0	47,1	1,6	16,5	31,4	46,4	18. 18. 1,4		C.
	(f) $\gamma$ 1 L.....	34,4	49,7	5,4	20,8	36,8	52,6	18. 37. 8,2		C.
	$\tau$ Sagittarii.....	22,4	37,6	52,3	8,1	23,2	38,5	18. 56. 53,6		C.
	$\chi^1$ Sagittarii.....	58,6	13,5	27,8	42,9	57,6	12,5	19. 15. 27,5		C.
	$\beta$ Aquilæ.....	56,7	10,3	23,5	37,4	50,7	4,4	19. 47. 17,8		C.
	(g) $\alpha^2$ Capricorni.....	39,5	53,3	7,2	21,1	54,8	48,5	20. 9. 2,5		C.
	(e) Procyon.....	22,0	35,4	48,6	2,3	15,7	29,3	7. 30. 42,8		C.
	(h) Pollux.....	52,4	7,5	22,5	38,3	53,4	8,6	7. 35. 23,9		C.
Aug. 10	(i) $\odot$ 1 L.....		41,7	55,6	9,8	23,6		9. 19.....	+ 7,03	C.
Aug. 11	$\alpha$ Coronæ Borealis....	15,5	30,3	45,6	1,0	16,2	31,2	15. 27. 46,3		C.
	$\alpha$ Serpentis.....	49,2	2,7	16,1	29,9	43,5	56,9	15. 36. 10,5		C.
	(k) $\delta$ Ophiuchi.....	24,2	37,9	51,1	4,7	18,2	31,8	16. 5. 45,2		C.
	$\delta$ 1 Ophiuchi.....	44,6	58,1	11,4	25,1	38,5	52,0	16. 43. 5,5		C.
	$\delta$ 30 Ophiuchi.....	4,2	17,6	30,8	44,6	58,2	11,7	16. 52. 25,1		C.
	Saturn 1 L.....	36,2		4,7		33,6		16. 56. 2,7	+ 0,03	C.
	Saturn 2 L.....		53,3		22,3		51,0	16. 55.....	- 0,04	C.
	(l) A.S.C. 1974.....	44,6	59,3			43,7		17. 7.....	+ 19,57	C.
	Piazzi XVII. 64.....	52,4	7,8	22,9	38,7	54,0	9,4	17. 12. 24,7		C.
	$\alpha$ Ophiuchi..... (blazing)	56,1	9,5	23,4	37,3	51,1	4,9	17. 27. 18,5		C.
	$\beta$ Ophiuchi.....	0,6	14,3	27,3	41,2	54,5	7,9	17. 35. 21,5		C.
	* N.P.D. 87°. 59'.....	41,5	55,1	8,1	22,0	35,3	48,7	17. 41. 2,3		C.
	* N.P.D. 89°. 3'.....	23,6	37,2	50,5	4,2	17,5	31,1	18. 8. 44,5		C.
	$\delta$ Ursæ Minoris.....	11.29,6	15.17,7		22.50,3	26.36,4	30.23,4	18. 34. 9,6	- 39,36	C.
	(m) $\delta$ 5 Aquilæ.....	40,1	53,3	6,4	20,1	33,6	47,3	18. 38. 0,5		C.
	(n) * N.P.D. 92°. 0'.....	31,1	44,3	57,6	11,4	24,7	38,3	18. 47. 51,6		C.
	(o) Piazzi XIX. 85.....	35,4	49,2	2,2	16,1	29,5	43,3	19. 13. 56,4		C.
	(p) $\alpha$ Aquilæ.....	25,0	38,3	51,7	5,6	19,3	33,0	19. 42. 46,4		C.
	(p) $\beta$ Aquilæ.....	53,9		20,7	34,4	47,9	1,2	19. 47. 15,0	- 4,50	C.
	$\epsilon$ Sagittarii.....	11,4	26,7	41,5	57,2	12,4	27,7	19. 52. 43,0		C.
	$\beta^2$ Capricorni... (cloudy)	27,0	41,0	51,7	8,8	22,7	36,6	20. 11. 50,5		C.
	$\gamma$ 1 L.....	40,2	54,5	9,3	24,4	39,3	54,2	20. 25. 9,1		C.
	(q) $\beta$ Tauri.....	30,4	45,7	0,7	16,4	31,5	46,7	5. 16. 2,1		C.
	(q) $\alpha$ Orionis... (cloud)					49,2	2,5	5. 46. 16,0	- 27,14	C.
Aug. 13	* N.P.D. 71°. 50'.....	42,9	57,1	10,6	25,3	39,4	53,5	18. 20. 7,6		C.
	* N.P.D. 68°. 11'.....	9,2	23,5	38,0	52,7	7,2	21,5	18. 38. 36,1		C.
	(r) $\alpha^2$ Capricorni.....	34,7	48,0	1,5	15,6	29,5	43,3	20. 8. 57,3		C.
	$\beta$ Aquarii.....	32,5	46,0	59,4	13,0	26,5	40,2	21. 22. 53,6		C.
	$\delta$ Capricorni.....	35,6	49,6	3,4	17,5	31,5	45,6	21. 37. 59,8		C.
	$\epsilon$ Aquarii.....	11,2	25,1	38,5	52,5	6,3	20,4	21. 57. 34,4		C.
	(s) $\eta$ Aquarii.....	32,5	46,1	59,2	12,7	26,4	39,7	22. 26. 53,1		C.
	$\lambda$ Aquarii.....	40,2	53,7	7,3	21,0	34,5	48,1	22. 44. 1,6		C.
	(t) $\alpha$ Pegasi.....	10,6	24,3	38,2	52,1	6,1	19,9	22. 56. 33,8		C.
Aug. 14	$\odot$ 2 L.....	39,6	54,0	7,3	21,5	35,4	49,4	9. 37. 3,4		C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

(a) Unsatisfactory. (b) Hurried: too close after the preceding observation. (c) Wire II was written down 43,7, and is altered by considering the intervals. (d) Thought to be better than the two preceding. (e) Very unsteady. (f) Intervals bad: much horizontal vibration. (g) The observations of the evening were all unsatisfactory. (h) Confused observation, so faint and unsteady. Counting being found 1° in advance, all the wires except wire VII, which was written down confusedly, have been diminished 1°. (i) Very cloudy and doubtful. (k) Wire III was confused. The counting was 5° in advance and the observation is corrected accordingly. (l) Extremely faint and doubtful, hardly worth retaining. (m) Not good. Double-star, the larger taken. (n) Hurried and taken in an inconvenient posture. (o) Very bad. Another star of less N.P.D. precedes. (p) Both very cloudy and uncertain. (q) Grouped with the preceding clock-stars. (r) Hurried at 1st wire. (s) The Moon's 2 L. was hid by clouds. (t) Through clouds and scarcely seen.

Concluded Transit over the Mean of the seven Wires.			Seconds of Transit corr. for Errors of Level and Collimation.		Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET
A.	M.	S.	A.	"	"	A.	A.	A.	A.	A.	A. M. S.	A.	
17.	7.	33.03		- 11.60	32.29				1.49	51.34	17. 8. 24.69	- 3.67	A.S.C. 1974.
17.	11.	23.30			22.52						17. 12. 14.92	- 3.72	$\theta$ Ophiuchi.
17.	17.	20.31			20.51						17. 18. 12.92	- 2.69	$\rho$ Herculis.
17.	26.	41.58			41.37	33.66	52.29				17. 27. 33.79	- 3.08	$\alpha$ Ophiuchi.
17.	40.	37.39			36.54						17. 41. 28.97		$\eta$ 1 L.
17.	54.	41.30			43.43						17. 55. 35.88	- 4.17	$\gamma^1$ Sagittarii.
18.	17.	18.06			17.26						18. 18. 9.73	- 4.12	$\lambda$ Sagittarii.
18.	19.	32.04			31.90						18. 20. 24.37	- 3.18	* N.P.D. 71°. 50.
18.	29.	58.13			58.75						18. 30. 51.24	- 2.73	* N.P.D. 38°. 21.
18.	37.	59.32			59.23						18. 38. 51.72	- 3.18	* N.P.D. 68°. 11.
19.	42.	9.94			9.66	2.19	52.53				19. 43. 2.22	- 3.56	$\alpha$ Aquile.
19.	46.	38.52			38.22	30.87	52.65				19. 47. 30.79	- 3.60	$\beta$ Aquile.
20.	8.	22.40			21.83	14.46	52.63				20. 9. 14.42	- 4.05	$\alpha^1$ Capricorni.
18.	17.	16.63			15.83				1.42	52.80	18. 18. 9.71	- 4.12	$\lambda$ Sagittarii.
18.	36.	21.12			20.29						18. 37. 14.18		$\eta$ 1 L.
18.	56.	7.96			7.12						18. 57. 1.04	- 4.37	$\tau$ Sagittarii.
19.	14.	42.91			42.13						19. 15. 36.07	- 4.32	$\chi^1$ Sagittarii.
19.	46.	37.26			36.96	30.87	53.91				19. 47. 30.98	- 3.60	$\beta$ Aquile.
20.	8.	20.98			20.41	14.46	54.05				20. 9. 14.40	- 4.05	$\alpha^1$ Capricorni.
7.	30.	2.30			1.98	56.72	54.74		1.38	54.26	7. 30. 56.67	- 1.37	Procyon.
7.	34.	35.09			38.14	32.71	54.67				7. 35. 32.84	- 1.74	Pollux.
9.	19.	9.70			9.52						9. 20. 4.31		$\odot$ 1 L.
15.	27.	0.87		- 8.92	0.91	57.29	56.38		1.28	55.59	15. 27. 57.32	- 2.36	$\alpha$ Corone Bor.
15.	35.	29.83			29.62	26.13	56.51				15. 36. 26.04	- 2.60	$\alpha$ Serpentis.
16.	5.	4.73			4.59	0.99	56.40				16. 6. 1.04	- 2.87	$\zeta$ Ophiuchi.
16.	42.	25.03			24.76						16. 43. 21.24	- 3.01	21 Ophiuchi.
16.	51.	44.60			44.26						16. 52. 40.75	- 3.14	30 Ophiuchi.
16.	55.	19.33			20.20						16. 56. 16.69		Saturn's center.
17.	7.	28.77			28.18						17. 8. 24.68	- 3.63	A.S.C. 1971.
17.	11.	38.56			38.63						17. 12. 35.14	- 2.74	Piazzi XVII. 64.
17.	26.	37.26	37.51		37.12	33.62	56.50				17. 27. 33.64	- 3.04	$\alpha$ Ophiuchi.
17.	34.	41.04			40.81						17. 35. 37.34	- 3.20	$\beta$ Ophiuchi.
17.	40.	21.83			21.60						17. 41. 18.14	- 3.27	* N.P.D. 87°. 59.
18.	8.	4.09			3.82						18. 9. 0.37	- 3.40	* N.P.D. 89°. 37.
18.	22.	48.47	52.94		58.59	55.15	56.56				18. 23. 55.16	- 0.19	$\zeta$ Ursæ Minoris.
18.	37.	20.18			19.88						18. 38. 16.46	- 3.55	$\delta$ Aquile.
18.	47.	11.28			10.97						18. 48. 7.56	- 3.60	* N.P.D. 92°. 07.
19.	13.	16.01			15.67						19. 14. 12.28	- 3.78	Piazzi XIX. 85.
19.	42.	5.61			5.42	2.18	56.76				19. 43. 2.06	- 3.55	$\alpha$ Aquile.
19.	46.	34.35			34.14	30.86	56.72				19. 47. 30.79	- 3.59	$\beta$ Aquile.
19.	51.	57.13			56.48						19. 52. 53.13	- 4.34	$\epsilon$ Sagittarii.
20.	11.	8.76			8.30						20. 12. 4.97	- 4.13	$\beta^1$ Capricorni.
20.	24.	24.43			23.87						20. 25. 20.55		$\eta$ 1 L.
5.	15.	16.22			16.29	13.18	56.89			56.87	5. 16. 13.44	- 2.25	$\delta$ Tauri.
5.	45.	35.43			35.22	32.51	57.29				5. 46. 32.40	- 1.81	$\alpha$ Orionis.
18.	19.	25.20			25.11				1.13	58.20	18. 20. 24.19	- 3.13	* N.P.D. 71°. 50.
18.	37.	52.60			52.56						18. 38. 51.65	- 3.13	* N.P.D. 68°. 11.
20.	8.	15.70			15.28	14.47	59.19				20. 9. 14.45	- 4.06	$\alpha^1$ Capricorni.
21.	22.	11.03			12.66	11.91	59.23				21. 23. 11.88	- 3.93	$\beta$ Aquarii.
21.	37.	17.57			17.07						21. 38. 16.30	- 4.19	$\zeta$ Capricorni.
21.	56.	52.63			52.17						21. 57. 51.42	- 4.10	$\epsilon$ Aquarii.
22.	26.	12.81			12.51						22. 27. 11.78	- 3.77	$\eta$ Aquarii.
22.	43.	20.91			20.53						22. 44. 19.82	- 3.86	$\lambda$ Aquarii.
22.	55.	52.14			52.02	51.27	54.23				22. 56. 51.32	- 3.51	$\alpha$ Pegasi.
9.	36.	21.31			21.39				1.06	59.34	9. 37. 21.17		$\odot$ 2 L.

Error of Collimation -- 0".65.

Level Error -- 6".37. From Aug. 11 -- 5".52, a mean between the results of levelling on Aug. 6 and Aug. 19. The levelling having been omitted in the intermediate time, this value was adopted because the level error appeared to be gradually diminishing.

The Meridian Error by  $\zeta$  Ursæ Minoris and  $\alpha$  Ophiuchi Aug. 11 -- 9".10, by Polaris and  $\alpha$  Andromedæ Aug. 14 -- 8".56, and by  $\zeta$  Ursæ Minoris and  $\alpha$  Herculis Aug. 17 -- 8".71, the respective allowances for clock-rate being 0".06, 0".05, and 0".08. The mean of the three results is used from Aug. 11.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		PM. A.	PM. A.	PM. A.	PM. A.	PM. A.	PM. A.	A. PM. A.		
Aug. 14	(a) Venus 1 L.... (Temp. 61°)	24,2	37,7	51,5	5,6	19,3	33,1	9. 59. 46,8		C.
	Arcturus.....	41,3	55,4	9,6	24,2	38,4	52,7	14. 8. 7,1		C.
	(b) * N.P.D. 60°. 25'.....	25,4	41,2	56,3	12,0	27,6	43,2	21. 0. 58,3		C.
	* N.P.D. 76°. 52'.....	22,0	35,7	49,3	3,4	17,1	31,0	21. 8. 44,6		C.
	β Aquarii.....	31,4	44,8	58,1	12,0	25,5	39,1	21. 22. 52,5		C.
	α Aquarii.....	57,3	10,6	24,0	37,6	51,2	4,5	21. 57. 17,8		C.
	η Aquarii.....	31,4	44,8	58,1	11,7	25,2	38,6	22. 26. 52,1		C.
	(c) λ Aquarii.....	39,2	52,5	6,0	19,6	33,4	47,1	22. 44. 0,4		C.
	(d) δ 2 L.....	44,6	58,5	12,0	26,2	40,1	53,7	22. 56. 7,6		C.
	γ Piscium.....	15,5	29,0	42,3	55,8	9,4	22,9	23. 8. 36,4		C.
	Uranus.....	41,6	55,2	8,3	22,1	35,5	49,2	23. 22. 2,6		C.
	λ Piscium.....	16,2	29,7	42,7	56,4	9,8	23,3	23. 33. 36,8		C.
	α Andromedæ.....	25,2	40,5	55,3	10,9	26,1	41,5	23. 59. 56,8		C.
	(e) Polaris.....	36. 9,8						0.....	+ 24. 58,91	C.
	(f) Venus 1 L.....	38,5	52,4	5,8	20,2	33,7	47,6	10. 14. 1,5		C.
	α Serpentis.....		55,8	9,1	22,9	36,4	50,0	15. 36. 3,5	- 6,76	C.
	δ Ophiuchi.....	17,3	30,8	44,1	57,8	11,2	24,6	16. 5. 38,1		C.
Aug. 17	α Herculis.....	39,1	53,0	6,6	20,8	34,6	48,6	17. 7. 2,5		C.
	(g) δ Ursæ Minoris.....		15. 8,4	18.50,6	22.41,0			18.....	+ 3. 47,16	G.
Aug. 18	(h) ⊙ 1 L.....		35,7	49,4	3,6	17,3	31,3	9. 49. 45,2	- 6,91	C.
	⊙ 2 L.....	32,4	46,3	59,8	14,0	27,7	41,4	9. 51. 55,4		C.
	* N.P.D. 76°. 43'.....	33,1	47,1	0,5	14,6	28,5	42,4	21. 9. 56,2		C.
	β Aquarii.....	25,0	38,5	51,7	5,6	19,1	32,5	21. 23. 46,2		C.
	α Aquarii.....	51,0	4,4	17,7	31,3	44,7	58,3	21. 58. 11,6		C.
Aug. 20	⊙ 1 L..... (Temp. 62°)	42,9	56,5	10,3	24,2	38,2	52,1	9. 58. 6,0		B.
	⊙ 2 L.....	53,1	7,2	20,9	35,0	48,9	2,3	10. 0. 16,1		B.
	(i) δ 2 L.....	20,1	35,3	51,1	6,7	22,2	37,7	4. 23. 53,2		B.
	Aldebaran..... (cloudy)	55,8	9,9	23,0	37,4	51,2	5,6	4. 27. 20,0		B.
	Rigel.....	2,8	16,2	29,6	43,4	57,0	10,8	5. 7. 24,1		B.
	β Tauri.....	17,7	33,0	47,9	3,5	19,0	34,0	5. 16. 49,3		B.
	δ Ursæ Minoris SP....		16.22,6	20. 7,4	23.55,3	27.44,3	31.27,7	6. 35. 13,5	- 1. 53,31	B.
Aug. 21	⊙ 1 L..... (Temp. 66°)	23,9	37,7	51,2	5,3	19,1	33,0	10. 1. 46,6		B.
	⊙ 2 L.....	34,0	47,9	1,7	15,6	29,1	43,0	10. 3. 57,0		B.
	Venus 1 L.....	22,4	36,2	49,8	3,9	17,2	31,2	10. 33. 44,9		B.
	δ Ursæ Minoris.....	12.10,6	15.59,8		23.27,5	27.17,3	31. 3,6	18. 34. 50,7	- 38,35	B.
	α Aquilæ..... (fading)	11,0	24,3	37,9	51,9	5,3	19,1	19. 43. 32,3		B.
	β Aquilæ.....	39,9	53,1	6,3	20,0	33,8	47,1	19. 48. 1,0		B.
	α Capricorni.....	22,8	36,8	50,2	3,9	18,0	31,8	20. 9. 45,3		B.
Aug. 22	(k) ⊙ 1 L.....	4,1			46,0	59,3	13,1	10. 5. 26,7	- 8,30	B.
	α Herculis.....	30,3	44,0	58,0	12,0	25,7	40,0	17. 7. 53,7		B.
	α Ophiuchi.....	40,2	54,1	7,7	21,4	35,2	49,2	17. 28. 3,0		B.
	β Ophiuchi.....	44,7	58,3	12,2	25,4	39,1	52,4	17. 36. 6,0		B.
	ι Aquilæ.....	52,1	5,9	19,2	33,0	46,2	59,9	18. 39. 13,4		B.
	θ Herculis.....	6,4	21,5	36,1	50,8	5,1	20,0	18. 48. 34,2		B.
	ζ Aquilæ.....	12,0	25,3	39,1	52,4	6,0	19,2	19. 12. 32,7		B.
	ρ Aquilæ.....	29,2	42,9	56,2	10,1	23,4	37,1	19. 29. 50,4		B.
	α Aquilæ.....	9,2	23,0	36,2	50,0	3,8	17,2	19. 43. 31,0		B.
	β Aquilæ.....	38,1	51,8	5,1	18,8	32,2	45,9	19. 47. 59,2		B.
	3 Capricorni.....	41,9	55,7	9,2	23,2	37,2	50,9	20. 8. 4,8		B.
	α Capricorni.....	21,2	35,2	48,5	2,9	16,3	30,1	20. 9. 44,0		B.
Aug. 23	Procyon.....	2,6	16,0	29,1	42,9	56,5	9,9	7. 31. 23,5		B.
	Pollux.....	33,1	48,1	3,3	19,2	34,1	49,3	7. 36. 5,1		B.
	(l) δ 2 L.....	29,6	45,1	0,2	15,9	31,4	46,2	7. 44. 1,3		B.
Aug. 24	⊙ 1 L..... (Temp. 64°)	24,0	37,6	51,0	5,2	18,9	32,6	10. 12. 46,2		B.
	⊙ 2 L.....	34,0	47,4	1,0	15,0	29,0	42,5	10. 14. 56,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

Aug. 18, 1<sup>st</sup>. The clock was put forward 1<sup>m</sup>. Two seconds were lost in adjusting the minute-hand.The Transit was levelled Aug. 19, 1<sup>st</sup>, and Aug. 24, 2<sup>nd</sup>.

(a) Badly defined and tremulous. The counting being 10<sup>s</sup> short, all the wires after the 2nd have been increased 10<sup>s</sup>. (b) A minute star (about 9th magnitude) followed by a much brighter of the same N.P.D. (c) Considered bad. (d) Uneven limb. (e) Clouds prevented taking more wires. This was thought worth using. (f) Very tremulous; wind boisterous. (g) Very cloudy and bad. (h) The rate of the preceding day is continued to include this observation, on account of the accident in adjusting the minute-hand of the clock. (i) Uneven. (k) Cloudy and very doubtful: a most perplexing transit. (l) Very faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup>	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
9.59.54.46		-8.92	5.34			1.09	59.54	10.0.5.13		Venus 1 L.
14.7.24.10			24.04	24.00	59.96			14.8.24.02	-2.02	Arcturus.
21.0.12.00			12.08					21.1.12.37	-3.35	* N.P.D. 60°.25'
21.8.3.30			3.16					21.9.3.46	-3.59	* N.P.D. 76°.52'
21.22.11.91			11.54	11.92	60.38			21.23.11.85	-3.94	$\beta$ Aquarii.
21.56.37.57			37.27	37.77	60.50			21.57.37.60	-3.81	$\alpha$ Aquarii.
22.26.11.70			11.40					22.27.11.76	-3.78	$\eta$ Aquarii.
22.43.19.75			19.37					22.44.19.74	-3.87	$\lambda$ Aquarii.
22.55.26.10			25.73					22.56.26.11		$\gamma$ 2 L.
23.7.55.90			55.65					23.8.56.04	-3.69	$\gamma$ Piscium.
23.21.22.07			21.72					23.22.22.12		Uranus.
23.32.56.41			56.14					23.33.56.55	-3.60	$\lambda$ Piscium.
23.59.10.90	11.23		10.95	11.15	60.20			0.0.11.38	-3.36	$\alpha$ Andromedæ.
1.1.8.71	18.34		31.42	31.52	60.10		60.43	1.2.31.90	-20.84	Polaris.
10.13.19.95			19.76			1.12	62.68	10.14.22.92		Venus 1 L.
15.35.22.86			22.61	26.03	63.44			15.36.26.02	-2.52	$\alpha$ Serpentis.
16.4.57.70			57.52	0.92	63.40			16.6.0.95	-2.80	$\delta$ Ophiuchi.
17.6.20.74	20.96		20.59	24.08	63.49			17.7.24.07	-2.84	$\alpha$ Herculis.
18.22.40.49	44.18		49.83	53.26	63.43			18.23.53.37	+2.08	$\delta$ Ursæ Minoris.
9.49.3.51			8.51				63.80	9.51.12.77		$\odot$ 's center.
9.51.13.86			14.45			1.43	5.57	21.9.21.28	-3.60	* N.P.D. 76°.43'
21.9.14.63			5.11	11.95	6.84			21.23.11.95	-3.97	$\beta$ Aquarii.
21.23.3.51			30.95	37.82	6.87			21.57.37.83	-3.86	$\alpha$ Aquarii.
21.57.31.28										
9.57.24.31		-12.62	29.20			1.46	8.39	9.58.38.20		$\odot$ 's center.
9.59.34.79			6.46				9.85	4.23.16.58		$\gamma$ 2 L.
4.23.6.62			37.26	47.40	10.14			4.26.47.38	-2.57	Aldebaran.
4.26.37.56			42.78	53.13	10.35			5.6.52.94	-1.99	Rigel.
5.6.43.41			3.36	13.49	10.13			5.16.13.53	-2.56	$\beta$ Tauri.
5.16.3.48			42.54	52.07	9.53			18.23.52.78	+3.27	$\delta$ Ursæ Min. SP.
6.23.55.16	51.85									
10.1.3.26			10.02					10.2.50.48		$\odot$ 's center.
10.3.15.47			3.29					10.33.13.78		Venus 1 L.
10.33.3.66			41.58	51.87	10.29			18.23.52.55	+3.27	$\delta$ Ursæ Minoris.
18.23.29.90	33.59		51.28	2.15	10.87			19.43.2.33	-3.52	$\alpha$ Aquilæ.
19.42.51.68			19.75	30.83	11.08			19.47.30.81	-3.56	$\beta$ Aquilæ.
19.47.20.17			3.44	14.47	11.03			20.9.14.52	-4.06	$\alpha^2$ Capricorni.
20.9.4.11										
10.4.45.54			45.17			1.43	11.35	10.4.57.12		$\odot$ 1 L.
17.7.11.96			11.62	24.01	12.39			17.7.23.99	-2.77	$\alpha$ Herculis.
17.27.21.54			21.17	33.48	12.31			17.27.33.56	-2.90	$\alpha$ Ophiuchi.
17.35.23.44			24.97					17.35.37.37	-3.06	$\beta$ Ophiuchi.
18.38.32.81			32.20					18.38.44.66	-3.55	$\iota$ Aquilæ.
18.47.50.58			50.32					18.48.2.79	-3.05	$\theta$ Herculis.
19.11.52.38			51.76					19.12.4.25	-3.71	$f$ Aquilæ.
19.29.9.90			9.29					19.29.21.80	-3.75	$p$ Aquilæ.
19.42.50.03			49.63	2.15	12.52			19.43.2.15	-3.52	$\alpha$ Aquilæ.
19.47.18.73			18.28	30.83	12.53			19.47.30.81	-3.56	$\beta$ Aquilæ.
20.7.23.27			22.57					20.7.35.12	-4.04	$\gamma$ Capricorni.
20.9.2.60			1.91	14.47	12.56			20.9.14.47	-4.06	$\alpha^2$ Capricorni.
7.30.42.90			42.43	57.02	14.59	1.31	14.06	7.30.56.90	-1.67	Procyon.
7.35.18.89			18.75	33.05	14.30			7.35.33.22	-2.08	Pollux.
7.43.15.67			15.45					7.43.29.93		$\gamma$ 2 L.
10.12.5.07			9.64					10.13.24.26		$\odot$ 's center.
10.14.15.00										

Error of Collimation = -0".65

Level Error = +5".52. From Aug. 17 = +4".68. From Aug. 22 = +4".19.

The Meridian Error from Aug. 20 by  $\delta$  Ursæ Minoris SP Aug. 20, and  $\delta$  Ursæ Minoris SP Aug. 21, allowing +0".77 for clock-rate, and -0".20 for change of  $\Delta$ .

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
Aug. 24	Venus 1 L.....	17,6	31,2	44,4	58,2	12,1	26,0	10. 47. 39,2		B.
	$\alpha$ Herculis.....	27,6	41,9	55,1	9,3	23,0	37,1	17. 7. 51,0		B.
	$\alpha$ Ophiuchi.....	37,4	51,0	5,0	13,9	32,7	46,1	17. 28. 0,1		B.
	$\beta$ Ophiuchi.....	42,1	55,9	9,1	22,9	36,1	49,9	17. 36. 3,3		B.
	$\iota$ Aquilæ.....	49,7	3,1	16,8	30,2	43,7	57,1	18. 39. 10,8		B.
	O Herculis.....	4,4	19,0	33,1	48,0	2,4	17,1	18. 48. 31,9		B.
	$f$ Aquilæ.....	9,0	22,5	36,2	49,5	3,1	16,5	19. 12. 30,1		B.
	P Aquilæ.....	27,0	40,2	53,5	7,1	20,7	34,0	19. 29. 47,9		B.
	$\alpha$ Aquilæ.....	6,7	20,2	33,7	47,4	1,1	14,9	19. 43. 28,2		B.
	$\beta$ Aquilæ.....	35,6	49,0	2,4	16,2	29,9	43,0	19. 47. 57,1		B.
	(a) 3 Capricorni.....	39,4	53,2	6,8	21,1	34,8	48,3	20. 8. 2,2		B.
Aug. 25	$\alpha^s$ Capricorni.....	18,6	32,2	46,1	0,2	14,0	27,7	20. 9. 41,1		B.
Aug. 26	$\odot$ 1 L.....	3,3	17,0	30,2	44,2	58,0	12,0	10. 16. 25,4		B.
	$\odot$ 2 L.....	13,0	26,4	39,9	54,0	7,9	21,3	10. 18. 34,9		B.
Aug. 27	(b) $\odot$ 1 L.....	42,0	55,3	9,1	22,8	36,7	50,3	10. 20. 4,3		B.
	$\odot$ 2 L.....	51,9	5,4	19,2	33,0	46,7	0,2	10. 22. 14,1		B.
	41 Ophiuchi..... (faint)	29,4	42,9	56,2	9,9	23,3	36,7	17. 8. 50,1		B.
	$\alpha$ Ophiuchi.....	34,9	48,6	2,0	16,0	29,9	43,7	17. 27. 57,7		B.
	* N.P.D. 87°. 59'.....	20,2	33,9	47,2	0,8	14,1	27,9	17. 41. 41,1		B.
	* N.P.D. 89°. 3'.....	3,0	16,6	29,2	43,1	55,9	9,9	18. 9. 23,3		B.
	A.S.C. 2154.....	24,8	39,1	53,1	8,0	22,1	36,8	18. 29. 51,0		B.
	5 Aquilæ.....	19,0	32,2	45,3	59,1	12,7	26,0	18. 38. 39,6		B.
	* N.P.D. 92°. 0'.....	10,1	23,5	37,2	50,5	4,0	17,3	18. 48. 38,8		B.
	$f$ Aquilæ.....	6,3	20,1	33,3	46,7	0,4	14,1	19. 12. 27,3		B.
	P Aquilæ.....	24,0	37,6	51,1	4,6	18,1	31,5	19. 29. 45,0		B.
	$\alpha$ Aquilæ.....	4,1	18,1	30,9	44,9	58,3	12,1	19. 43. 25,5		B.
	$\beta$ Aquilæ.....	33,0	46,4	59,8	13,8	27,2	40,5	19. 47. 54,4		B.
	$\alpha^s$ Capricorni.....	15,9	29,7	43,1	57,2	11,1	25,0	20. 9. 38,7		B.
	61 Cygni.....	38,3	55,2	12,2	29,5	46,5	3,9	21. 0. 21,0		B.
	(c) $\odot$ 1 L.....	20,1	33,8	47,3	....	....	....	10. 22. ....	+ 27,43	B.
	(d) 41 Ophiuchi.....	27,8	41,3	54,8	8,2	21,9	35,2	17. 8. 48,8		B.
	$\alpha$ Ophiuchi.....	33,4	47,3	0,8	15,0	28,3	42,2	17. 27. 56,0		B.
	* N.P.D. 87°. 59'.....	18,9	32,2	45,4	59,1	12,5	26,1	17. 41. 39,6		B.
	* N.P.D. 89°. 3'.....	1,1	14,4	27,8	41,3	55,1	8,3	18. 9. 21,7		B.
	* N.P.D. 71°. 50' (faint)	....	37,0	51,0	5,3	19,4	33,5	18. 20. 48,0	- 7,07	B.
	(e) * N.P.D. 70°. 13'....	2,1	....	30,9	....	59,3	14,0	18. 25. 28,1	- 5,70	B.
	A.S.C. 2154.....	23,0	37,1	51,9	6,2	20,8	35,0	18. 29. 49,2		B.
	5 Aquilæ.....	17,1	31,0	43,7	57,2	11,0	24,2	18. 38. 37,9		B.
	* N.P.D. 92°. 0'.....	8,4	21,9	35,2	48,9	2,2	15,9	18. 48. 29,2		B.
	$f$ Aquilæ.....	4,7	18,2	31,1	45,1	58,8	12,0	19. 12. 25,7		B.
	P Aquilæ.....	22,8	35,0	48,9	3,2	16,5	30,0	19. 29. 43,2		B.
	$\alpha$ Aquilæ.....	2,2	16,1	29,2	43,2	57,0	10,8	19. 43. 24,2		B.
	$\beta$ Aquilæ.....	31,1	44,9	58,1	11,7	25,3	39,0	19. 47. 52,3		B.
Aug. 28	$\Sigma$ 2652.....	....	11,8	39,9	8,0	36,1	4,9	20. 7. 32,9	- 14,12	B.
	61 Cygni.....	37,0	54,0	10,8	28,3	45,1	2,6	21. 0. 19,8		B.
	$\delta$ Equulei.....	45,0	58,7	12,0	25,9	39,8	53,2	21. 7. 7,1		B.
	$\beta$ Aquarii.....	12,5	25,9	39,3	53,2	6,8	20,1	21. 23. 33,7		B.
	$\kappa$ Capricorni.....	45,6	59,8	14,1	28,3	42,6	56,3	21. 34. 11,1		B.
	$\alpha$ Aquarii.....	38,4	52,1	5,2	18,9	32,1	45,5	21. 57. 59,1		B.
	$\alpha$ Ophiuchi.....	32,0	45,6	59,0	13,1	27,0	40,8	17. 27. 54,7		B.
	$\delta$ Ursæ Minoris.....	12. 9,8	15.56,3	19.38,7	23.29,3	27.14,6	31. 2,2	18. 34. 48,4		B.
	$\iota$ Aquilæ.....	44,0	57,4	11,1	24,4	38,2	51,4	18. 39. 5,1		B.
	Piazzi XIX. 85.....	11,7	25,0	38,2	52,0	5,8	19,1	19. 14. 32,8		B.
	$\alpha$ Aquilæ..... (blazing)	1,2	14,9	28,1	42,0	55,2	9,0	19. 43. 22,8		B.
	$\beta$ Aquilæ.....	30,1	43,5	56,9	10,4	23,9	37,4	19. 47. 51,0		B.
	$\Sigma$ 2652.....	41,9	9,9	37,9	6,6	34,9	3,4	20. 7. 31,3		B.
Aug. 29	(f) $\odot$ 1 L.....	35,6	49,3	2,8	16,8	30,4	44,0	10. 30. 57,8		B.
	$\odot$ 2 L.....	45,1	58,8	12,4	25,9	39,7	53,3	10. 33. 7,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.  
Aug. 31, 2<sup>h</sup>. The Transit was levelled.

- (a) Confused.  
(b) Cloudy and very unsteady.  
(c) Extremely cloudy.

- (d) The counting being found 10" in arrear, the observation is altered accordingly.  
(e) Hazy and very faint. (f) Very great motion.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	"	"	"	"	"	"	"	A. M. S.	"	"
10. 46. 58.89		- 12.62	57.97			1.31	14.06	10. 47. 12.61		Venus 1 L.
17. 7. 9.29			8.95	23.98	15.03			17. 7. 23.94	- 2.74	$\alpha$ Herculis.
17. 27. 18.75			18.38	33.45	15.07			17. 27. 33.59	- 2.87	$\alpha$ Ophiuchi.
17. 35. 22.75			22.28					17. 35. 37.30	- 3.04	$\beta$ Ophiuchi.
18. 38. 30.20			29.59					18. 38. 44.66	- 3.53	$\gamma$ Aquilæ.
18. 47. 47.99			47.73					18. 48. 2.82	- 3.02	$\delta$ Herculis.
19. 11. 49.56			48.94					19. 12. 4.05	- 3.68	$\gamma$ Aquilæ.
19. 29. 7.20			6.59					19. 29. 21.71	- 3.75	$\rho$ Aquilæ.
19. 42. 47.46			47.04	2.13	15.09			19. 43. 2.17	- 3.50	$\alpha$ Aquilæ.
19. 47. 16.17			15.72	30.82	15.10			19. 47. 30.86	- 3.55	$\beta$ Aquilæ.
20. 7. 20.82			20.12					20. 7. 35.28	- 4.04	$\gamma$ Capricorni.
20. 8. 59.98			59.29	14.46	15.17			20. 9. 14.45	- 4.05	$\alpha$ Capricorni.
10. 15. 44.30			48.71				15.37	10. 17. 4.64		$\odot$ 's center.
10. 17. 53.91										
10. 19. 22.93			27.52			1.15	16.82	10. 20. 44.83		$\odot$ 's center.
10. 21. 32.93										
17. 8. 9.79			9.25					17. 8. 26.89	- 2.97	$\delta$ Ophiuchi.
17. 27. 16.11			15.73	33.42	17.69			17. 27. 33.39	- 2.84	$\alpha$ Ophiuchi.
17. 41. 0.74			0.24					17. 41. 17.91	- 3.11	* N.P.D. 87°. 59'.
18. 8. 43.00			42.48					18. 9. 0.17	- 3.26	* N.P.D. 89°. 3'.
18. 29. 7.85			7.02					18. 29. 24.72	- 3.89	A.S.C. 2154.
18. 37. 59.13			58.58					18. 38. 16.28	- 3.43	$\gamma$ Aquilæ.
18. 47. 50.20			49.63					18. 48. 7.35	- 3.49	* N.P.D. 92°. 0'.
19. 11. 46.89			46.27					19. 12. 4.01	- 3.67	$\gamma$ Aquilæ.
19. 29. 4.56			3.95					19. 29. 21.70	- 3.72	$\rho$ Aquilæ.
19. 42. 44.84			44.42	2.12	17.70			19. 43. 2.18	- 3.49	$\alpha$ Aquilæ.
19. 47. 13.58			13.13	30.81	17.68			19. 47. 30.90	- 3.54	$\beta$ Aquilæ.
20. 8. 57.24			56.55	14.46	17.91			20. 9. 14.33	- 4.05	$\alpha$ Capricorni.
20. 59. 29.52			29.53					20. 59. 47.35	- 3.24	$\delta$ Cygni.
10. 23. 1.16		+ 0.74	1.25			1.23	17.81	10. 23. 19.59		$\odot$ 1 L.
17. 8. 8.29			8.37					17. 8. 27.06	- 2.96	$\delta$ Ophiuchi.
17. 27. 14.71			14.80	33.40	18.60			17. 27. 33.50	- 2.82	$\alpha$ Ophiuchi.
17. 40. 59.12			59.20					17. 41. 17.91	- 3.09	* N.P.D. 87°. 59'.
18. 8. 41.38			41.46					18. 9. 0.20	- 3.24	* N.P.D. 89°. 3'.
18. 20. 5.30			5.39					18. 20. 24.14	- 2.96	* N.P.D. 71°. 50'.
18. 24. 45.18			45.27					18. 25. 4.02	- 2.95	* N.P.D. 70°. 13'.
18. 29. 6.17			6.21					18. 29. 21.97	- 3.88	A.S.C. 2154.
18. 37. 57.45			57.53					18. 38. 16.29	- 3.42	$\gamma$ Aquilæ.
18. 47. 48.82			48.89					18. 48. 7.66	- 3.49	* N.P.D. 92°. 0'.
19. 11. 45.09			45.16					19. 12. 3.95	- 3.66	$\gamma$ Aquilæ.
19. 29. 2.80			2.87					19. 29. 21.68	- 3.72	$\rho$ Aquilæ.
19. 42. 43.24			43.32	2.12	18.80			19. 43. 2.14	- 3.49	$\alpha$ Aquilæ.
19. 47. 11.77			11.86	30.60	18.94			19. 47. 30.68	- 3.53	$\beta$ Aquilæ.
20. 6. 8.15			8.30					20. 6. 27.14	- 2.59	$\Sigma$ 2652.
20. 59. 28.23			28.36					20. 59. 47.25	- 3.24	$\delta$ Cygni.
21. 6. 25.96			26.04					21. 6. 44.94	- 3.68	$\delta$ Equulei.
21. 22. 53.07			53.14	11.99	18.85			21. 23. 12.05	- 4.01	$\beta$ Aquarii.
21. 33. 28.26			28.30					21. 33. 47.21	- 4.36	* Capricorni.
21. 57. 18.76			18.84	37.87	19.03			21. 57. 37.77	- 3.91	$\alpha$ Aquarii.
17. 27. 13.17	13.23		13.26	33.39	20.13	1.44	19.04	17. 27. 33.35	- 2.81	$\alpha$ Ophiuchi.
18. 23. 28.47	29.59		29.12	49.19	20.07			18. 23. 49.26	- 6.15	$\delta$ Ursa Minoris.
18. 38. 24.51			24.58					18. 38. 44.74	- 3.49	$\gamma$ Aquilæ.
19. 13. 52.08			52.15					19. 14. 12.34	- 3.62	Piazzi XIX. 85.
19. 42. 41.88			41.96	2.11	20.15			19. 43. 2.18	- 3.48	$\alpha$ Aquilæ.
19. 47. 10.45			10.54	30.80	20.26			19. 47. 30.77	- 3.53	$\beta$ Aquilæ.
20. 6. 6.26			6.71					20. 6. 26.96	- 2.56	$\Sigma$ 2652.
10. 30. 16.67						1.49	20.55			
10. 32. 26.04			21.44					10. 31. 42.64		$\odot$ 's center.

Error of Collimation = - 0".65.

Level Error = + 4".19 From Aug. 27 = + 1".91

 The Meridian Error from Aug. 27 by  $\delta$  Ursa Minoris and  $\alpha$  Ophiuchi Aug. 28, allowing 0".06 for clock-rate.  
 For an account of the change of Meridian Error, see the Introduction

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
Aug. 29	$\alpha$ Ophiuchi.....	30,6	44,0	57,7	11,8	25,5	39,0	17. 27. 53,0		B.
	* N.P.D. 70°. 13'.....	59,9	14,0	27,9	42,2	56,6	10,3	18. 25. 25,1		B.
	$\epsilon$ Lyræ..... (cloudy)	50,9	8,3	25,7	43,2	0,8	18,2	18. 39. 34,6		B.
Aug. 31	$\delta$ Ophiuchi.....	55,9	9,3	22,5	35,9	49,7	3,2	16. 6. 16,7		B.
	41 Ophiuchi.....	22,2	35,7	49,0	2,7	16,1	29,7	17. 8. 43,1		B.
	$\alpha$ Ophiuchi.....	27,4	41,0	54,8	9,0	22,8	36,3	17. 27. 50,1		B.
	* N.P.D. 71°. 50'.....	17,1	31,2	45,1	59,7	13,7	28,1	18. 20. 41,9		B.
	* N.P.D. 70°. 13'.....	57,1	11,1	24,8	39,4	53,9	7,9	18. 25. 22,0		B.
	A.S.C. 2154.....	17,1	31,9	45,2	0,3	14,9	29,0	18. 29. 44,0		B.
	$\epsilon$ Lyræ.....	47,7	5,9	22,9	40,6	58,1	15,3	18. 39. 32,9		B.
	$\alpha$ Aquilæ.....	57,0	10,3	23,9	37,7	50,9	5,2	19. 43. 18,3		B.
	$\beta$ Aquilæ.....	25,7	39,1	52,4	6,1	19,7	33,0	19. 47. 47,1		B.
	61 Cygni.....	31,3	48,4	5,2	22,6	39,9	56,8	21. 0. 13,9		B.
	$\delta$ Equulei.....	39,9	53,1	6,5	20,1	33,9	47,5	21. 7. 1,1		B.
	$\beta$ Aquarii.....	6,7	20,0	33,9	47,2	1,1	14,5	21. 23. 28,2		B.
	(a) Mercury 2 L.....	9,7	23,2	37,1	51,1	5,3	19,3	9. 33. 33,2		B.
	(b) $\odot$ 1 L.....	26,3	40,0	53,1	7,0	20,9	34,3	10. 41. 48,0		B.
	$\odot$ 2 L.....	35,2	48,9	2,1	16,0	30,0	43,3	10. 43. 57,0		B.
	(c) Venus 1 L.....	53,2	7,0	20,4	34,0	47,7	1,2	11. 24. 14,9		B.
Sept. 1	(d) Spica.....	41,8	55,1	8,7	22,8	36,2	49,9	13. 17. 3,4		B.
	(e) $\odot$ 1 L.....	24,5	39,3	54,1	9,5	24,1	39,3	14. 38. 54,0		B.
	$\alpha$ Libræ.....	56,9	11,0	25,0	38,9	53,1	7,0	14. 42. 20,9		B.
	Jupiter 1 L.....	1,5	.....	29,3	.....	57,2	.....	14. 45. 25,2	+ 0,03	B.
	Jupiter 2 L.....	.....	17,9	.....	45,8	.....	14,1	14. 45. ....	- 0,04	B.
	$\alpha$ Coronæ Borealis.....	45,8	1,0	15,8	31,1	46,0	1,8	15. 28. 16,7		B.
	Antares.....	28,8	44,1	58,8	13,9	28,7	43,7	16. 19. 58,7		B.
	41 Ophiuchi.....	20,7	34,3	47,7	1,3	14,7	28,1	17. 8. 41,3		B.
	* N.P.D. 70°. 13'.....	55,1	9,7	23,2	38,0	52,4	6,7	18. 25. 21,4		B.
	$\epsilon$ Lyræ.....	46,8	4,0	21,1	39,0	56,2	14,0	18. 39. 31,0		B.
	$\alpha$ Aquilæ.....	55,1	9,2	22,4	36,1	50,0	3,3	19. 43. 17,1		B.
	$\beta$ Aquilæ.....	24,7	38,1	51,2	5,0	18,1	32,0	19. 47. 45,3		B.
	$\Sigma$ 2652.....	36,1	4,3	31,5	0,9	29,0	56,9	20. 7. 25,5		B.
	(f) 61 Cygni.....	29,7	46,9	3,8	21,2	58,1	55,4	21. 0. 12,2		B.
	(g) Mercury 2 L.....	35,2	49,1	2,6	17,0	30,6	44,3	9. 37. 58,4		B.
Sept. 2	$\odot$ 2 L.....	11,8	25,0	38,7	52,4	6,0	19,5	10. 47. 33,1		B.
	$\alpha$ Aquilæ.....	53,9	7,9	20,9	35,0	48,3	1,9	19. 43. 15,4		B.
	$\beta$ Aquilæ.....	22,9	36,4	49,9	4,1	16,9	30,8	19. 47. 44,1		B.
	$\Sigma$ 2652.....	34,8	3,1	30,6	59,1	27,6	56,0	20. 7. 24,1		B.
	61 Cygni.....	29,0	45,7	3,0	19,9	37,0	54,0	21. 0. 11,1		B.
Sept. 3	$\odot$ 1 L.....	38,9	52,7	6,0	19,8	33,5	46,9	10. 49. 0,7		G.
	$\odot$ 2 L..... (Temp 64°)	47,6	1,1	14,6	28,4	42,0	55,5	10. 51. 9,2		G.
	(c) Venus 1 L.....	.....	.....	24,1	38,0	51,3	4,9	11. 33. ....	- 6,73	G.
	$\beta$ Leonis.....	45,2	59,3	13,2	27,6	41,5	55,4	11. 41. 9,4		G.
	(f) $\alpha$ Coronæ Borealis.....	43,7	58,8	13,6	29,0	44,1	59,2	15. 27. ....	+ 7,58	G.
	$\alpha$ Serpentis.....	17,1	30,9	44,0	57,8	11,4	25,0	15. 36. 38,5		G.
	$\odot$ 1 L.....	49,2	4,9	20,3	36,1	51,9	7,6	16. 24. 23,0		G.
	$\alpha$ Herculis.....	14,1	28,0	41,6	55,9	9,8	23,5	17. 7. 37,7		G.
	$\alpha$ Ophiuchi.....	23,9	37,8	51,3	5,1	19,0	33,0	17. 27. 46,5		G.
	(h) $\odot$ 1 L.....	.....	28,2	.....	.....	9,0	22,3	10. 52. 35,9	- 13,62	B.
Sept. 4	$\odot$ 2 L.....	23,0	37,0	50,3	4,0	17,7	31,2	10. 54. 44,9		B.
Sept. 5	$\gamma$ Sagittarii.....	18,2	34,0	49,1	5,1	20,8	36,2	17. 55. 52,0		B.
	(i) $\odot$ 1 L.....	27,1	42,9	58,2	14,4	30,0	45,3	18. 15. 1,7		B.
	$\phi$ Sagittarii.....	27,3	42,6	57,4	12,8	27,8	43,0	18. 35. 58,1		B.
	$\sigma$ Sagittarii.....	8,8	23,9	38,3	54,0	8,9	23,8	18. 45. 39,0		B.
	$\alpha$ Aquilæ.....	50,3	4,0	17,4	31,0	44,8	58,6	19. 43. 12,0		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.  
Sept. 8, 2<sup>b</sup>. The Transit was levelled.

(a) Very great motion. (b) Cloudy and unsteady. (c) Extremely cloudy. (d) Great unsteadiness.  
(e) Faint. (f) Cloudy. (g) Faint and very unsteady. (h) Heavily clouded. Both limbs without dark glass. The loss of clock at 0<sup>b</sup> for this observation is derived from B's observations of Sept. 5, because B's and G's observations do not agree. (See Introduction.) (i) Cloudy and badly defined.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	A.	"	A.	A.	A.	A.	A.	A. M. S.	A.	
17. 27. 11.65		+ 0.74	11.74	33.37	21.63	1.49	20.55	17. 27. 33.37	- 2.79	$\alpha$ Ophiuchi.
18. 24. 42.28			42.37					18. 25. 4.06	- 2.92	* N.P.D. 70°. 13'
18. 38. 43.10			43.22					18. 39. 4.93	- 2.58	$\epsilon$ Lyrae.
16. 5. 36.17			36.26	0.71	24.45	1.34	23.42	16. 6. 0.58	- 2.59	$\delta$ Ophiuchi.
17. 8. 2.64			2.72					17. 8. 27.09	- 2.89	41 Ophiuchi.
17. 27. 8.78			8.87	33.34	24.47			17. 27. 33.26	- 2.76	$\alpha$ Ophiuchi.
18. 19. 59.55			59.64					18. 20. 24.08	- 2.90	* N.P.D. 71°. 50'
18. 24. 39.46			39.55					18. 25. 4.00	- 2.89	* N.P.D. 70°. 13'
18. 29. 0.34			0.38					18. 29. 24.83	- 3.83	A.S.C. 2154.
18. 38. 40.48			40.60					18. 39. 5.06	- 2.52	$\epsilon$ Lyrae.
19. 42. 37.62			37.70	2.08	24.38			19. 43. 2.22	- 3.45	$\alpha$ Aquilae.
19. 47. 6.16			6.25	30.77	24.52			19. 47. 30.78	- 3.50	$\beta$ Aquilae.
20. 59. 22.58			22.71					20. 59. 47.30	- 3.22	61 Cygni.
21. 6. 20.30			20.38					21. 6. 44.98	- 3.67	$\delta$ Equulei.
21. 22. 47.37			47.44	11.99	24.55			21. 23. 12.05	- 4.01	$\beta$ Aquarii.
9. 32. 51.27			51.37			1.32	24.75	9. 33. 16.64		Mercury 2 L.
10. 41. 7.09			11.66					10. 42. 37.00		$\odot$ 's center.
10. 43. 16.07			34.15					11. 23. 59.53		Venus 1 L.
11. 23. 34.06			22.61	48.13	25.52			13. 16. 48.09	- 1.69	Spica.
13. 16. 22.53			9.30					14. 38. 34.85		$\gamma$ 1 L.
14. 38. 9.26			39.04	4.50	25.46			14. 42. 4.60	- 2.18	$\alpha$ 1 Librae.
14. 41. 38.98			44.67					14. 45. 10.23		Jupiter's center.
14. 44. 43.33			31.27	56.92	25.65			15. 27. 56.87	- 1.99	$\alpha$ Coronae Bor.
14. 44. 45.89			13.84	39.56	25.72			16. 19. 39.49	- 3.02	Antares.
15. 27. 31.17			1.23					17. 8. 26.92	- 2.88	41 Ophiuchi.
16. 19. 13.81			38.16					18. 25. 3.92	- 2.87	* N.P.D. 70°. 13'
17. 8. 1.15			39.00					18. 39. 4.77	- 2.52	$\epsilon$ Lyrae.
18. 24. 38.07			36.25	2.07	25.82			19. 43. 2.08	- 3.44	$\alpha$ Aquilae.
18. 38. 38.88			5.00	30.76	25.76			19. 47. 30.84	- 3.49	$\beta$ Aquilae.
19. 42. 36.17			0.75					20. 6. 26.61	- 2.45	$\Sigma$ 2652.
19. 47. 4.91			21.17			1.22	26.14	20. 59. 47.08	- 3.20	61 Cygni.
20. 6. 0.60			16.83					9. 37. 43.46		Mercury 2 L.
20. 59. 21.04			32.44					10. 47. 19.13		$\odot$ 2 L.
9. 37. 16.74			34.85	2.06	27.21			19. 43. 1.99	- 3.43	$\alpha$ Aquilae.
10. 46. 52.35			3.68	30.75	27.07			19. 47. 30.82	- 3.48	$\beta$ Aquilae.
19. 42. 34.76			39.48					20. 6. 26.64	- 2.42	$\Sigma$ 2652.
19. 47. 3.58			20.09					20. 59. 47.30	- 3.19	61 Cygni.
20. 5. 59.33			24.16			1.13	27.15	10. 49. 51.82		$\odot$ 's center.
20. 59. 19.96			37.93					11. 33. 5.62		Venus 1 L.
10. 48. 19.79			27.47	55.28	27.81			11. 40. 55.17	- 1.59	$\beta$ Leonis.
10. 50. 28.55			29.08	56.88	27.80			15. 27. 56.96	- 1.97	$\alpha$ Coronae Bor.
11. 32. 37.84			37.91	25.80	27.89			15. 36. 25.79	- 2.27	$\alpha$ Serpentis.
11. 40. 27.37			36.17					16. 24. 4.99		$\gamma$ 1 L.
15. 27. 28.98			55.90	25.82	27.92			17. 7. 23.85	- 2.58	$\alpha$ Herculis.
15. 33. 37.82			5.32	33.29	27.97			17. 27. 33.29	- 2.71	$\alpha$ Ophiuchi.
16. 23. 36.14			59.66				28.59	10. 53. 28.76		$\odot$ 's center
17. 6. 55.80		- 0.17	5.02			1.39	29.72	17. 55. 35.78	- 3.80	$\gamma$ Sagittarii.
17. 27. 5.23			14.19					18. 14. 44.97		$\gamma$ 1 L.
10. 51. 55.23			12.67					18. 35. 43.47	- 3.97	$\phi$ Sagittarii.
10. 54. 4.01			53.77					18. 45. 24.57	- 4.01	$\alpha$ Sagittarii.
17. 55. 5.06			31.18	2.03	30.85			19. 43. 2.04	- 3.40	$\alpha$ Aquilae.
18. 14. 14.23										
18. 35. 12.71										
18. 44. 53.81										
19. 42. 31.15										

Error of Collimation = - 0".65.

Level Error = + 1".91. From Sept. 5 ~ + 1".59.

Meridian Error from Sept. 4 by Polaris, Polaris SP, and Polaris Sept. 11 and 12.

Month and Day.	NAME OF STAR OR PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		ml. s.	ml. s.	ml. s.	ml. s.	ml. s.	ml. s.	h. m. s.	ml. s.	
Sept. 5	$\beta$ Aquilæ.....	19,3	33,0	46,0	59,9	13,3	27,0	19.47.40,4		B.
	$\alpha^s$ Capricorni.....	2,0	16,0	29,4	43,6	57,2	11,1	20.9.25,0		B.
	$\beta$ Aquarii.....	0,7	14,0	27,3	41,0	54,5	8,1	21.23.21,8		B.
Sept. 7	$\alpha$ Hydræ..... (cloudy)	...	...	...	10,3	23,8	...	9.19.51,1	- 18,12	B.
	Regulus.....	35,9	50,0	3,7	17,8	31,2	45,1	9.59.58,9		B.
	Mercury 2 L.....	27,4	41,2	54,4	8,5	22,3	36,0	10.11.50,2		B.
Sept. 8	$\odot$ 1 L.}..... (Temp. 99°)	34,9	48,3	1,8	15,3	28,9	42,6	11.6.56,0		B.
	$\odot$ 2 L.}	43,3	56,8	10,1	23,9	37,4	51,0	11.9.4,8		B.
	Venus 1 L.....	29,2	42,9	56,3	10,0	23,3	37,0	11.55.50,6		B.
	$\alpha^s$ Capricorni.....	57,7	11,8	25,2	38,9	53,2	6,8	20.9.20,8		B.
	$\pi$ Capricorni.....	55,7	9,8	23,9	38,2	52,1	6,5	20.18.20,9		B.
	(a) $\gamma$ 1 L.....	17,7	31,7	46,2	1,1	15,8	30,3	20.55.45,0		B.
	$\epsilon$ Capricorni.....	6,1	20,1	34,1	48,8	2,9	16,9	21.13.30,9		B.
	$\beta$ Aquarii.....	55,7	9,7	23,1	36,4	50,0	3,8	21.23.17,1		B.
	$\gamma$ Capricorni.....	59,9	13,9	27,4	42,0	56,1	10,2	21.31.24,0		B.
Sept. 9	$\alpha$ Ophiuchi.....	15,3	29,2	42,8	56,7	10,4	24,0	17.27.38,0		B.
	$\alpha$ Aquilæ.....	44,7	58,1	11,7	25,4	39,2	52,4	19.43.6,1		B.
	$\beta$ Aquilæ.....	13,5	27,3	40,1	53,9	7,9	21,1	19.47.34,4		B.
	(b) $\alpha$ Hydræ.....	26,7	40,3	53,8	7,9	21,4	34,7	9.19.48,3		B.
	(c) Regulus.....	33,2	47,3	1,0	15,1	28,8	42,3	9.59.56,2		B.
	(c) Mercury 2 L.....	36,6	50,9	4,3	18,4	33,3	...	10.24. ....	+ 13,81	B.
Sept. 10	$\odot$ 1 L.....	44,1	57,5	10,9	24,7	38,3	51,7	11.14.5,5		B.
	$\odot$ 2 L.....	52,4	6,0	19,3	33,0	46,5	0,3	11.16.14,0		B.
	(d) Venus 1 L.....	29,0	42,4	56,0	9,5	23,0	36,8	12.4.50,1		B.
	Polaris SP.....	37.8,7	45.28,5	53.52,6	2.14,4	10.41,7	18.54,2	13.27.16,5		B.
	Arcturus.....	2,9	17,2	31,3	45,9	59,9	14,0	14.8.29,2		B.
	(e) $\epsilon$ Bootis.....	38,4	53,8	8,4	23,9	39,0	...	14.37. ....	+ 15,23	B.
	(e) $\alpha$ Aquilæ.....	43,1	56,7	...	...	36,9	51,0	19.43.5,0	- 2,75	B.
	(e) $\beta$ Aquilæ.....	12,2	25,9	39,4	53,0	6,2	19,8	19.47.33,2		B.
	$\alpha^s$ Capricorni.....	55,0	8,9	22,2	36,3	50,1	4,1	20.9.17,9		B.
	(c) $\odot$ 1 L.....	18,7	31,8	45,2	58,9	12,6	...	11.17.39,7	+ 4,51	B.
Sept. 11	$\odot$ 2 L.....	27,0	...	54,0	7,9	21,2	...	11.19. ....	+ 10,17	B.
	$\epsilon$ Bootis.....	36,9	52,0	7,1	22,6	37,8	53,0	14.38.8,1		B.
	$\alpha$ Herculis.....	2,5	16,7	30,0	44,3	58,1	12,1	17.7.26,0		B.
	$\alpha$ Ophiuchi.....	12,5	26,1	39,9	54,0	7,8	21,4	17.27.35,1		B.
	$\delta$ Lyrae.....	35,6	53,0	10,8	27,9	45,0	2,5	18.39.19,9		B.
	Piazzi XX. 429.....	43,1	4,5	25,1	46,0	7,0	27,7	20.53.48,4		B.
	61 Cygni.....	16,7	33,9	50,5	8,1	24,9	41,8	20.59.59,0		B.
	$\delta$ Equulei.....	24,8	38,1	51,7	5,6	19,2	32,9	21.6.46,1		B.
	$\beta$ Aquarii.....	51,8	5,7	19,0	32,5	46,0	59,7	21.23.13,1		B.
	$\alpha$ Aquarii.....	18,1	31,8	45,2	58,7	12,0	25,3	21.57.38,9		B.
	$\zeta$ Aquarii.....	19,9	33,2	46,4	0,3	13,7	27,0	22.20.40,3		B.
	$\phi$ Aquarii.....	46,0	59,7	13,2	27,0	40,2	54,0	23.6.7,6		B.
	(f) $\gamma$ 1 L.....	41,1	54,9	8,4	22,3	36,2	49,9	23.24.3,6		B.
	$\gamma$ 2 L.....	51,1	4,9	18,7	33,0	46,3	0,2	23.26.14,0		B.
	$\omega$ Piscium.....	49,9	3,3	17,0	30,4	44,0	57,3	23.51.11,2		B.
	Polaris..... (flaring)	36.58,3	45.21,6	53.33,2	2.6,7	10.26,4	18.46,3	1.27.7,2		B.
	Regulus..... (haze)	30,8	44,6	58,1	12,1	25,9	59,9	9.59.53,8		B.
	(g) Mercury 2 L.....	13,7	27,4	41,2	55,3	8,8	22,5	10.38.36,3		B.
	(h) $\odot$ 1 L.....	52,6	6,3	19,4	33,2	47,0	0,6	11.21.13,9		B.
	$\odot$ 2 L.....	1,2	14,9	28,1	41,4	55,1	8,8	11.23.22,0		B.
Sept. 12	(g) Venus 1 L.....	28,0	41,3	54,9	8,8	22,0	35,3	12.15.48,9		B.
	Polaris SP.....	37.4,7	45.24,4	53.46,7	2.7,3	10.34,4	...	13. ....	+ 8.20,24	B.
	$\epsilon$ Bootis.....	35,6	50,9	5,8	21,1	36,3	51,4	14.38.6,8		B.
	$\alpha$ Herculis.....	1,4	15,2	29,0	42,9	57,0	10,8	17.7.24,9		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

- (a) Cloudy and faint.  
 (b) Extremely unsteady.  
 (c) Very cloudy and unsteady.  
 (d) Extraordinary motion.

(e) Very cloudy.

- (f) Very hazy and faint. Correction applied to apparent R. of 1 L. for defect of illumination = - 0',01.  
 (g) Cloudy and very unsteady.  
 (h) Some wires doubtful on account of clouds.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
19. 46. 59.85		- 0.17	59.87	30.72	30.85	1.39	29.72	19. 47. 30.74	- 3.45	$\beta$ Aquilæ.
20. 8. 43.47			43.47	14.39	30.92			20. 9. 14.36	- 3.98	$\alpha^2$ Capricorni.
21. 22. 41.05			41.06	11.98	30.92			21. 23. 11.96	- 4.00	$\beta$ Aquarii.
9. 19. 10.28			10.28	44.96	34.68	1.43	34.13	9. 19. 44.96	- 1.40	$\alpha$ Hydræ.
9. 59. 17.52			17.55	52.42	34.87			9. 59. 52.27	- 1.72	Regulus.
10. 11. 8.58			8.61					10. 11. 43.35		Mercury 2 L.
11. 6. 13.40			19.67					11. 7. 54.46		$\odot$ 's center.
11. 8. 23.90			9.92					11. 55. 44.76		Venus 1 L.
11. 55. 9.90			39.20	14.37	35.17			20. 9. 14.53	- 3.96	$\alpha^2$ Capricorni.
20. 8. 39.20			33.14					20. 18. 13.48	- 4.15	$\pi$ Capricorni.
20. 17. 38.16			1.08					20. 55. 36.46		$\gamma$ 1 L.
20. 55. 1.11			48.53					21. 13. 23.92	- 4.27	$\epsilon$ Capricorni.
21. 12. 48.55			36.55	11.97	35.42			21. 23. 11.95	- 3.99	$\beta$ Aquarii.
21. 22. 36.54			41.91					21. 31. 17.32	- 4.30	$\gamma$ Capricorni.
21. 30. 41.93										
17. 26. 56.63			56.66	33.20	36.54	1.38	35.50	17. 27. 33.16	- 2.62	$\alpha$ Ophiuchi.
19. 42. 23.37			25.40	1.99	36.59			19. 43. 2.03	- 3.36	$\alpha$ Aquilæ.
19. 46. 54.03			54.05	30.68	36.63			19. 47. 30.68	- 3.41	$\beta$ Aquilæ.
9. 19. 7.59			7.59	45.00	37.41	1.39	36.90	9. 19. 45.03	- 1.44	$\alpha$ Hydræ.
9. 59. 14.84			14.87	52.45	37.53			9. 59. 52.35	- 1.75	Regulus.
10. 24. 18.51			18.54					10. 24. 56.04		Mercury 2 L.
11. 13. 24.67			28.89					11. 15. 6.44		$\odot$ 's center.
11. 15. 33.07			9.57					12. 4. 47.17		Venus 1 L.
12. 4. 9.55			11.90	45.82	33.92			1. 2. 49.55	- 35.93	Polaris SP.
13. 2. 13.80			45.81	23.66	37.85			14. 8. 23.53	- 1.68	Arcturus.
14. 7. 45.77			23.98	1.69	37.71			14. 38. 1.73	- 1.70	$\epsilon$ Bootis.
14. 37. 23.93			23.82	1.97	38.15			19. 43. 1.86	- 3.34	$\alpha$ Aquilæ.
19. 42. 23.79			52.83	30.66	37.83			19. 47. 30.88	- 3.39	$\beta$ Aquilæ.
19. 46. 52.61			56.36	14.35	37.99			20. 9. 14.43	- 3.94	$\alpha^2$ Capricorni.
20. 8. 36.36										
11. 16. 58.99			3.36			1.35	38.27	11. 18. 42.27		$\odot$ 's center.
11. 19. 7.69			22.35	1.67	39.12			14. 38. 1.64	- 1.68	$\epsilon$ Bootis.
14. 37. 22.50			44.28	23.68	39.40			17. 7. 23.51	- 2.44	$\alpha$ Herculis.
17. 6. 44.24			53.86	33.16	39.30			17. 27. 33.11	- 2.58	$\alpha$ Ophiuchi.
17. 26. 33.83			27.89					18. 39. 7.21	- 2.28	5 Lyre.
18. 38. 27.82			46.07					20. 53. 25.51	- 2.86	Piazzi XX. 429.
20. 52. 45.97			7.93					20. 59. 47.38	- 3.10	61 Cygni.
20. 59. 7.85			5.52					21. 6. 44.98	- 3.62	$\delta$ Equulei.
21. 6. 5.49			32.55	11.96	39.41			21. 23. 12.02	- 3.98	$\beta$ Aquarii.
21. 22. 32.54			58.58	37.90	39.32			21. 57. 38.08	- 3.94	$\alpha$ Aquarii.
21. 56. 58.57			0.12					22. 20. 39.63	- 3.98	$\zeta$ Aquarii.
22. 20. 0.11			26.82					23. 6. 6.39	- 4.10	$\phi$ Aquarii.
23. 5. 26.82			22.35					23. 24. 1.92		$\gamma$ 1 L.
23. 23. 22.34			32.61					23. 26. 12.20		$\gamma$ 2 L.
23. 23. 32.60			30.46					23. 51. 10.07	- 3.92	$\omega$ Piscium.
23. 50. 30.44	6.56		4.83	46.31	41.48		39.62	1. 2. 44.51	- 36.42	Polaris.
1. 2. 2.81			12.20	52.48	40.28	1.28	39.68	9. 59. 52.41	- 1.78	Regulus.
9. 59. 12.17			55.06					10. 38. 35.51		Mercury 2 L.
10. 37. 55.03										
11. 20. 33.28			37.48					11. 22. 17.77		$\odot$ 's center.
11. 22. 41.64			8.48					12. 13. 48.81		Venus 1 L.
12. 13. 8.46	6.11		5.84	46.49	40.65			1. 2. 46.21	- 36.60	Polaris SP.
13. 2. 7.74			21.18	1.66	40.48			14. 38. 1.64	- 1.67	$\epsilon$ Bootis.
14. 37. 21.13			43.07	23.66	40.59			17. 7. 23.66	- 2.42	$\alpha$ Herculis.
17. 6. 43.03										

Error of Collimation = - 0".65.

Level Error = + 1".59.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
Sept. 12	$\alpha$ Ophiuchi.....	11,1	25,0	38,3	52,6	6,0	20,1	17. 27. 33,9		B.
	$\delta$ Lyrae.....	34,0	51,3	8,9	26,2	44,0	1,2	18. 39. 18,9		B.
	Piazzì XX. 429.....	42,0	3,2	23,9	44,9	6,0	27,0	20. 53. 47,2		B.
	(a) $\delta$ Cygni.....	15,3	32,2	49,2	7,0	23,9	40,9	20. 59. 58,3		B.
	$\delta$ Equulei.....	23,7	37,1	50,3	4,2	18,0	31,4	21. 6. 44,9		B.
	$\beta$ Aquarii.....	50,8	4,2	17,8	31,2	45,1	58,2	21. 23. 11,9		B.
	$\kappa$ Capricorni.....	23,9	38,0	52,1	6,6	20,9	35,0	21. 33. 49,3		B.
	$\alpha$ Aquarii.....	16,2	29,9	43,3	57,0	10,8	24,1	21. 57. 37,6		B.
	$\zeta$ Aquarii.....	18,3	32,0	45,1	58,9	12,2	25,9	22. 20. 39,2		B.
	$\phi$ Aquarii.....	44,8	58,2	11,9	25,4	39,1	52,3	23. 6. 6,1		B.
	$\eta$ Aquarii.....	48,7	2,3	15,7	29,4	43,1	56,4	23. 11. 10,1		B.
	Uranus.....	56,5	10,2	23,3	37,2	50,5	4,2	23. 18. 17,5		B.
	$\eta$ Piscium.....	26,0	39,0	52,3	6,2	19,9	33,2	23. 39. 47,1		B.
	$\omega$ Piscium.....	48,5	2,0	15,2	29,0	42,5	56,2	23. 51. 9,5		B.
	(b) $\gamma$ 2 L.....	30,9	45,0	58,4	13,0	26,2	40,1	0. 15. 54,0		B.
	$\delta$ Piscium.....	5,7	19,2	32,8	46,2	59,9	13,3	0. 40. 27,1		B.
	$\epsilon$ Piscium.....	21,1	34,5	48,2	1,9	15,2	28,9	0. 54. 42,2		B.
	(c) Polaris.....	37. 1,6	45.25,3	....	2. 6,4	10.27,5	18.48,2	1. 27. 8,5	- 1. 24,74	B.
	(d) $\alpha$ Andromedæ.....	44,1	59,1	14,2	29,9	45,2	0,3	0. 0. 15,2		B.
	(e) $\delta$ Piscium.....	4,7	18,0	31,2	45,0	58,3	12,0	0. 40. 25,3		B.
Sept. 13	(e) $\epsilon$ Piscium.....	19,9	33,3	47,2	0,8	14,1	27,3	0. 54. 41,1		B.
	(e) $\gamma$ 2 L.....	8,0	21,7	35,1	49,7	4,2	18,0	1. 7. 32,1		B.
	$\alpha$ Arietis..... (flaring)	47,9	2,6	17,0	31,9	46,0	0,9	1. 58. 15,3		B.
Sept. 15	Piazzì XX. 429.....	38,3	59,5	20,1	41,4	2,2	23,1	20. 53. 43,9		B.
	$\delta$ Cygni.....	11,7	29,1	45,6	3,0	19,8	37,1	20. 59. 54,0		B.
	$\Sigma$ 2776..... (cloudy)	23,4	37,1	50,7	5,0	18,2	31,5	21. 6. 46,0		B.
	$\beta$ Aquarii.....	47,0	0,6	14,1	27,5	41,2	55,0	21. 23. 8,4		B.
	$\kappa$ Capricorni.....	20,2	34,3	48,2	2,8	17,3	31,6	21. 33. 45,9		B.
	$\alpha$ Aquarii.....	13,2	26,7	40,3	53,5	6,9	20,4	21. 57. 34,2		B.
	(f) Regulus.....	25,9	40,0	53,3	7,4	21,3	....	9. 59. ....	+ 13,81	B.
Sept. 16	(g) Mercury 2 L.....	52,2	5,6	19,3	32,8	46,5	0,4	11. 13. 13,8		B.
Sept. 17	(h) $\odot$ 1 L.....	43,3	56,9	10,2	24,0	....	50,7	11. 39. 4,2	+ 2,25	B.
	$\odot$ 2 L..... (Temp. 54°)	52,0	5,3	18,7	....	45,6	59,2	11. 41. 12,9	+ 0,01	B.
	(h) Polaris SP.....	....	45.22,8	....	....	10.31,2	....	13. 27. 8,7	- 5. 35,85	B.
	$\alpha$ Herculis.....	55,0	9,0	22,7	36,9	50,8	4,8	17. 7. 18,7		B.
	$\alpha$ Ophiuchi.....	5,0	18,8	32,3	46,2	59,9	13,8	17. 27. 27,8		B.
	* N.P.D. 90°. 26'.....	58,9	12,9	25,7	39,4	52,9	6,2	18. 29. 19,9		B.
	$\delta$ Lyrae..... (cloudy)	....	....	....	20,1	37,3	55,1	18. 39. 12,4	- 26,17	B.
	$\chi$ Capricorni.....	57,8	12,2	26,4	41,1	55,5	9,9	21. 0. 24,3		B.
	$\Sigma$ 2776.....	20,9	34,7	48,1	2,1	15,7	29,2	21. 6. 43,1		B.
	$\beta$ Aquarii.....	44,5	58,0	11,9	25,2	39,0	52,2	21. 23. 6,0		B.
	$\alpha$ Aquarii.....	11,0	24,0	37,3	50,9	4,3	17,9	21. 57. 31,1		B.
	$\zeta$ Aquarii.....	12,4	26,0	38,9	53,0	6,3	19,9	22. 20. 33,2		B.
	$\lambda$ Pegasi.....	22,8	37,9	51,9	7,0	21,4	36,1	22. 38. 50,4		B.
	$\mu$ Pegasi.....	50,0	4,7	19,1	34,1	48,7	3,9	22. 42. 18,0		B.
	(i) Polaris.....	36.56,3	45.15,4	53.30,6	2. 3,3	10.22,8	18.44,2	1. 27. 4,8		B.
	(k) $\odot$ 2 L..... (Temp. 59°)	59,7	13,2	26,4	....	53,5	....	11. 47. ....	+ 16,89	B.
	$\Sigma$ 2776.....	17,9	31,8	45,3	58,9	12,4	26,7	21. 6. 40,1		B.
	$\beta$ Aquarii.....	41,7	55,1	8,4	22,2	35,8	49,1	21. 23. 2,9		B.
	$\alpha$ Aquarii.....	7,9	21,2	34,1	48,1	1,7	15,3	21. 57. 28,5		B.
	$\zeta$ Aquarii.....	9,4	23,0	56,1	50,0	3,3	16,8	22. 20. 30,2		B.
Sept. 19	$\lambda$ Pegasi.....	19,6	34,7	49,2	3,9	18,3	33,0	22. 38. 47,9		B.
	$\mu$ Pegasi.....	47,1	2,0	16,0	31,2	45,8	0,7	22. 42. 15,1		B.
	$\alpha$ Pegasi.....	20,2	34,1	47,8	2,0	15,7	29,4	22. 56. 43,3		B.
Sept. 20	(l) $\gamma$ 2 L.....	36,9	51,4	6,1	21,0	35,9	50,9	8. 23. 5,7		B.
	$\alpha$ Hydrie.....	12,5	26,0	39,2	53,0	6,7	20,4	9. 19. 33,8		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

The Transit was levelled Sept. 17, 2<sup>h</sup>, and Sept. 23, 2<sup>h</sup>.

- (a) Unsteady. (b) Hazy, faint, and very indistinct. The intervals are unsatisfactory. (c) Pretty steady.  
 (d) Blazing between clouds. (e) Very cloudy and unsteady. (f) Wind loud; cloudy and uncertain.  
 This observation is grouped with the preceding clock-stars. (g) Great motion. (h) Clouds and much motion.  
 (i) A large and flaming disk, very bad to observe. (k) Very cloudy, unsteady, and difficult to observe.  
 (l) Faint and indistinct.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1844.	NAME OF STAR or PLANET.
17. 26. 52.43		- 0.17	52.46	33.14	40.68	1.28	39.68	17. 27. 33.07	- 2.56	$\alpha$ Ophiuchi.
18. 38. 26.36			26.43					18. 39. 7.10	- 2.26	$\delta$ Lyrae.
20. 52. 44.89			44.99					20. 53. 25.79	- 2.84	Piazzi XX. 429.
20. 59. 6.69			6.77					20. 59. 47.57	- 3.09	$\theta$ Cygni.
21. 6. 4.23			4.26					21. 6. 45.07	- 3.61	$\delta$ Equulei.
21. 22. 31.31			31.32	11.95	40.63			21. 23. 12.14	- 3.97	$\beta$ Aquarii.
21. 33. 6.51			6.51					21. 33. 47.34	- 4.35	$\kappa$ Capricorni.
21. 56. 56.99			57.00	37.89	40.89			21. 57. 37.85	- 3.93	$\alpha$ Aquarii.
22. 19. 58.80			58.81					22. 20. 39.68	- 3.98	$\zeta$ Aquarii.
23. 5. 25.40			25.40					23. 6. 6.32	- 4.09	$\phi$ Aquarii.
23. 10. 29.39			29.40					23. 11. 10.32	- 4.10	$\eta$ Aquarii.
23. 17. 37.06			37.07					23. 18. 18.00		Uranus.
23. 39. 6.24			6.25					23. 39. 47.19	- 4.05	$\mu$ Piscium.
23. 50. 28.99			29.01					23. 51. 9.96	- 3.92	$\omega$ Piscium.
0. 15. 12.51			12.53				40.96	0. 15. 53.50		$\gamma$ 2 L.
0. 39. 46.31			46.34					0. 40. 27.34	- 3.89	$\delta$ Piscium.
0. 54. 1.71			1.74					0. 54. 42.75	- 3.87	$\epsilon$ Piscium.
1. 2. 4.84	6.61		6.86	46.67	39.81			1. 2. 47.87	- 36.78	Polaris.
23. 59. 29.72			29.76	11.63	41.89	1.16	42.02	0. 0. 11.78	- 3.86	$\alpha$ Andromedae.
0. 39. 44.93			44.95					0. 40. 27.00	- 3.90	$\delta$ Piscium.
0. 51. 0.52			0.54					0. 51. 12.60	- 3.89	$\epsilon$ Piscium.
1. 6. 49.83			49.86					1. 7. 31.93		$\gamma$ 2 L.
1. 57. 31.65			31.69	13.93	42.24			1. 58. 13.80	- 3.86	$\alpha$ Arctis.
20. 52. 41.21		- 0.60	41.30			1.26	43.22	20. 53. 25.61	- 2.79	Piazzi XX. 429.
20. 59. 2.90			2.96					20. 59. 47.28	- 3.06	$\theta$ Cygni.
21. 6. 4.56			4.53					21. 6. 48.86	- 4.04	$\Sigma$ 2776.
21. 22. 27.69			27.67	11.94	44.27			21. 23. 12.01	- 3.96	$\beta$ Aquarii.
21. 33. 2.90			2.84					21. 33. 47.19	- 4.34	$\kappa$ Capricorni.
21. 56. 53.60			53.59	37.89	44.30			21. 57. 37.96	- 3.93	$\alpha$ Aquarii.
9. 59. 7.39			7.40	52.55	45.15		44.48	9. 59. 52.40	- 1.85	Regulus.
11. 12. 31.94			32.94			1.34	45.70	11. 13. 19.26		Mercury 2 L.
11. 38. 23.80			23.80					11. 40. 14.43		$\odot$ 's center.
11. 40. 52.29			52.29							
13. 2. 5.03	3.55		2.61	48.64	46.03			1. 2. 49.04	- 38.75	Polaris SP
17. 6. 36.84			36.85	23.57	46.72			17. 7. 23.50	- 2.33	$\alpha$ Herculis.
17. 26. 46.26			46.27	33.06	46.79			17. 27. 32.94	- 2.48	$\alpha$ Ophiuchi
18. 28. 39.42			39.41					18. 29. 26.14	- 3.06	$\star$ N.P.D. 98° 20'
18. 38. 20.05			20.11					18. 39. 6.85	- 2.14	$\delta$ Lyrae.
20. 59. 41.92			40.96					21. 0. 27.83	- 4.30	$\gamma$ Capricorni.
21. 6. 1.97			1.94					21. 6. 48.82	- 4.02	$\Sigma$ 2776.
21. 22. 23.26			23.24	11.93	46.69			21. 23. 12.13	- 3.95	$\beta$ Aquarii.
21. 56. 50.93			50.92	37.89	46.97			21. 57. 37.84	- 3.93	$\alpha$ Aquarii.
22. 19. 32.81			32.80					22. 20. 39.74	- 3.98	$\zeta$ Aquarii.
22. 38. 6.79			6.82					22. 38. 53.78	- 3.70	$\lambda$ Pegasi.
22. 41. 34.07			34.10					22. 42. 21.06	- 3.69	$\mu$ Pegasi.
1. 1. 59.63	1.26		2.14	48.66	46.72		47.04	1. 2. 49.24	- 38.97	Polaris.
11. 47. 40.09			40.08			1.42	48.47	11. 48. 29.25		$\odot$ 2 L.
21. 5. 59.92			58.99					21. 6. 48.71	- 4.01	$\Sigma$ 2776.
21. 22. 22.17			22.15	11.91	49.76			21. 23. 11.88	- 3.93	$\beta$ Aquarii.
21. 56. 48.12			48.11	37.88	49.77			21. 57. 37.88	- 3.92	$\alpha$ Aquarii.
22. 19. 49.82			49.81					22. 20. 39.61	- 3.97	$\zeta$ Aquarii.
22. 38. 3.80			3.83					22. 38. 53.64	- 3.70	$\lambda$ Pegasi.
22. 41. 31.13			31.16					22. 42. 20.98	- 3.70	$\mu$ Pegasi.
22. 56. 1.78			1.79	51.59	49.80			22. 56. 51.62	- 3.83	$\alpha$ Pegasi.
8. 22. 21.13		- 0.85	21.13			1.50	51.59	8. 23. 13.24		$\gamma$ 2 L.
9. 18. 53.08			53.04	43.21	52.17			9. 19. 45.21	- 1.63	$\alpha$ Hydrae.

Error of Collimation = - 0".65

Level Error = + 1".29 From Sept. 15 = + 1".52 From Sept. 20 = + 1".33

Meridian Error from Sept. 15 by Polaris SP and Polaris Sept. 17, allowing + 0".69 for clock-rate, and - 0".22 for change of  $\Delta$ l.Meridian Error by Polaris Sept. 23 and Polaris SP Sept. 24, allowing + 0".74 for clock-rate and - 0".09 for change of  $\Delta$ l, is - 0".92. That by Polaris SP Sept. 24 and Polaris Sept. 25, allowing + 2".22 for clock-rate and - 0".51 for change of  $\Delta$ l, is - 0".78. The mean of these is used from Sept. 20



Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.		
Sept. 23	(a) ☉ 2 L.....	...	30,0	43,6	57,1	11,0	24,3	12. 2. 38,0	- 6,73	B.
	α Herculis.....	46,6	0,6	14,0	28,0	42,0	55,8	17. 7. 9,9		B.
	α Ophiuchi.....	56,3	10,0	23,7	37,8	51,4	5,2	17. 27. 19,0		B.
	* N.P.D. 90°. 26.....	49,9	3,6	16,9	30,5	43,9	57,3	18. 29. 10,9		B.
	χ <sup>a</sup> Capricorni.....	49,1	3,8	17,9	32,3	46,8	1,4	21. 0. 15,9		B.
	(b) Σ 2776.....	12,7	26,1	40,1	53,4	6,9	21,1	21. 6. 34,7		B.
	β Aquarii.....	36,0	49,4	3,0	16,7	30,2	44,0	21. 22. 57,3		B.
	α Aquarii.....	2,1	15,4	28,5	42,2	56,0	9,3	21. 57. 23,0		B.
	ζ Aquarii.....	4,1	17,3	30,6	44,1	57,7	11,0	22. 20. 24,6		B.
	λ Pegasi.....	14,3	28,9	43,0	58,0	12,7	27,0	22. 38. 42,1		B.
	α Pegasi.....	14,8	28,2	42,0	56,0	10,0	23,8	22. 56. 38,0		B.
	Polaris.....	36.47,8	45.12,5	53.24,3	1.56,2	10.15,3	18.36,7	1. 26. 59,2		B.
	(c) ☉ 1 L.....	42,7	56,3	9,9	23,3	37,0	50,2	12. 4. 3,9		B.
	☉ 2 L..... (Temp. 52°)	51,2	5,0	18,3	32,0	45,2	59,0	12. 6. 12,4		B.
Sept. 24	Polaris SP.....	...	45.14,5	53.37,8	1.54,5	...	...	13.....	+ 8. 22,07	B.
	χ <sup>a</sup> Capricorni.....	46,1	0,6	14,9	29,4	43,8	58,3	21. 0. 13,0		B.
	β Aquarii..... (flaring)	33,1	46,4	0,1	13,8	27,1	40,6	21. 22. 54,2		B.
	κ Capricorni.....	6,4	20,7	34,2	49,1	3,3	17,7	21. 33. 32,2		B.
	α Aquarii.....	59,1	12,6	25,9	39,4	53,1	6,3	21. 57. 20,0		B.
	μ Pegasi.....	38,4	53,1	7,7	22,4	37,2	51,9	22. 42. 6,9		B.
	α Pegasi.....	11,4	25,1	39,2	53,3	7,4	21,1	22. 56. 34,5		B.
	φ Aquarii.....	27,6	41,2	54,3	7,9	21,2	35,0	23. 5. 48,4		B.
	96 Aquarii..... (hazy)	31,2	44,8	58,1	12,0	25,3	38,9	23. 10. 52,2		B.
	η Piscium.....	8,0	21,7	35,0	48,7	2,1	15,9	23. 39. 29,1		B.
	ρ Piscium.....	54,0	7,4	21,1	34,4	48,0	1,9	23. 50. 15,1		B.
	α Andromedæ.....	27,1	42,7	57,4	13,0	28,5	43,9	23. 59. 59,2		B.
	Polaris.....	36.44,6	45.12,4	53.26,1	1.49,8	10.10,8	18.35,6	1. 26. 57,7		B.
Sept. 26	(d) ☉ 1 L.....	...	...	19,0	32,4	46,1	59,8	12. 11. 13,1	- 13,47	B.
	☉ 2 L.....	1,0	14,3	27,9	41,2	54,9	8,2	12. 13. 21,9		B.
Sept. 28	(c) Regulus.....	7,4	21,2	34,6	48,7	2,8	16,2	10. 0. 30,2		B.
Sept. 29	☉ 2 L.....	46,1	0,1	12,8	26,9	40,2	54,0	12. 25. 7,5	+ 6. 42,39	B.
	Polaris SP.....	37.46,2	46. 8,6	54.31,4	2.52,3	...	19.35,4	13.....		B.
	(c) Arcturus.....	36,3	50,7	5,0	19,2	33,4	48,1	14. 9. 2,1		B.
	ε Bootis.....	11,7	27,1	41,7	57,2	12,4	27,3	14. 38. 42,8		B.
	α Pegasi.....	5,7	19,6	33,1	47,2	1,0	15,0	22. 57. 28,9		B.
										B.
Sept. 30	(e) ☉ 1 L.....	...	...	...	...	7,3	20,9	12. 26. 34,3	- 27,03	B.
	☉ 2 L.....	...	...	49,0	2,9	16,1	29,4	12. 28. 43,0	- 13,48	B.
	(c) Polaris SP.....	...	46. 8,7	54.28,6	...	...	19.34,4	13. 27. 58,6	- 4. 10,24	B.
Oct. 1	Regulus.....	3,0	16,8	30,3	44,2	58,1	11,9	10. 0. 25,7	+ 6,99	B.
	(f) β Leonis.....	4,9	18,9	32,4	46,7	0,9	14,9	11. 41.....		B.
Oct. 2	α Ophiuchi.....	42,4	56,1	9,9	23,8	37,6	51,4	17. 28. 5,0		B.
	χ <sup>a</sup> Capricorni.....	35,1	49,9	4,1	18,7	32,9	47,4	21. 1. 2,0		B.
	β Aquarii.....	22,1	36,0	49,2	2,8	16,2	30,0	21. 23. 43,2		B.
	κ Capricorni.....	55,3	9,8	23,8	38,2	52,4	7,1	21. 34. 21,0		B.
	(g) α Aquarii.....	48,1	1,8	15,2	28,3	42,1	55,7	21. 58. 9,1		B.
	α Pegasi.....	0,7	14,7	28,2	42,2	56,1	10,2	22. 57. 24,1		B.
	φ Aquarii.....	16,3	29,9	43,1	56,9	10,7	24,1	23. 6. 38,0		B.
	96 Aquarii.....	20,8	34,1	47,3	1,0	14,7	28,2	23. 11. 41,9		B.
	η Piscium.....	57,7	11,1	24,3	38,0	51,6	5,1	23. 40. 18,4		B.
	ρ Piscium.....	43,2	56,9	10,5	23,9	37,3	50,7	23. 51. 4,3		B.
	(h) α Andromedæ.....	16,9	32,2	47,2	2,8	18,0	33,1	0. 0. 48,1		B.
	Polaris.....	37.33,7	...	54.11,2	2.42,4	11. 0,8	19.24,4	1. 27. 46,6	- 2. 46,87	B.
	(i) Regulus.....	1,7	15,3	29,1	43,0	56,6	10,7	10. 0. 24,2		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

Sept. 28, 2<sup>h</sup>. The clock was put forward 1<sup>m</sup>.The Transit was levelled Sept. 30, 2<sup>h</sup>, and Oct. 6, 2<sup>h</sup>.

(a) Very cloudy, unsteady, and difficult to observe. (b) Very faint. (c) Great unsteadiness.  
 (d) Very cloudy and faint. (e) Very cloudy and much motion. (f) Through cloud, very faint.  
 (g) Blazing, then cloudy; not good. (h) Flaming. (i) Very unsteady. This observation is grouped with the preceding clock-stars.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	A.	"	S.	A.	A.	A.	A.	A. M. S.	A.	
12. 1. 57,27 17. 6. 28,13 17. 26. 37,63 18. 28. 30,42 20. 59. 32,45 21. 5. 53,57 21. 22. 16,66 21. 56. 42,35 22. 19. 44,20 22. 37. 58,00 22. 55. 56,12 1. 1. 53,14		- 0,85	57,23 28,12 37,62 30,38 32,37 53,52 16,62 42,31 44,16 58,00 56,11 55,64			1,45	54,17	12. 2. 52,13 17. 7. 23,32 17. 27. 32,84 18. 29. 25,67 21. 0. 27,81 21. 6. 48,97 21. 23. 12,08 21. 57. 37,81 22. 20. 39,68 22. 38. 53,54 22. 56. 51,66 1. 2. 51,32		⊙ 2 L. α Herculis. α Ophiuchi. * N.P.D. 90°. 26'. χ <sup>2</sup> Capricorni. Σ 2776. β Aquarii. α Aquarii. ζ Aquarii. λ Pegasi. α Pegasi. Polaris.
12. 3. 23,33 12. 5. 31,87 13. 1. 57,67			27,56 55,20					12. 5. 23,91 1. 2. 51,61		⊙'s center. Polaris SP.
20. 59. 29,45 21. 22. 13,61 21. 52. 49,09 21. 56. 39,49 22. 41. 22,51 22. 55. 53,14 23. 5. 7,95 23. 10. 11,78 23. 38. 48,65 23. 49. 34,56 23. 59. 13,11 1. 1. 51,00			29,37 13,57 49,01 39,45 22,52 53,13 7,91 11,74 48,61 34,52 13,12 53,50			1,49	57,03	21. 0. 27,72 21. 23. 11,95 21. 33. 47,40 21. 57. 37,86 22. 42. 20,98 22. 56. 51,60 23. 6. 6,40 23. 11. 10,23 23. 39. 47,13 23. 50. 33,05 0. 0. 11,66 1. 2. 52,10		χ <sup>2</sup> Capricorni. β Aquarii. α Capricorni. α Aquarii. μ Pegasi. α Pegasi. φ Aquarii. 96 Aquarii. π Piscium. ρ Piscium. α Andromedæ. Polaris.
12. 10. 32,61 12. 12. 41,34			36,94					12. 12. 36,24		⊙'s center.
9. 59. 48,73		- 1,12	48,76			1,54	3,20	9. 59. 52,60	- 2,08	Regulus.
12. 24. 26,80 13. 2. 53,17 14. 8. 19,26 14. 37. 57,17 22. 56. 47,22			26,79 48,44 19,31 57,25 47,25					12. 24. 30,79 1. 2. 52,47 14. 8. 23,41 14. 38. 1,39 22. 56. 51,92		⊙ 2 L. Polaris SP. Arcturus. ε Bootis. α Pegasi.
12. 25. 53,80 12. 28. 2,60 13. 2. 52,33			58,19 47,60				4,74	12. 27. 3,72 1. 2. 53,17		⊙'s center. Polaris SP
9. 59. 44,29 11. 40. 46,77			44,32 46,81			1,58	7,73	9. 59. 52,71 11. 40. 55,31	- 2,15 - 1,78	Regulus. β Leonis.
17. 27. 23,74 21. 0. 18,59 21. 23. 2,78 21. 33. 58,23 21. 57. 28,62 22. 56. 42,31 23. 5. 57,00 23. 11. 1,14 23. 39. 38,01 23. 50. 24,83 0. 0. 2,61 1. 2. 39,65 9. 59. 42,94			23,77 18,51 2,76 58,13 28,61 42,34 56,98 1,12 38,01 23,81 2,69 44,46 42,97					17. 27. 32,65 21. 0. 27,62 21. 23. 11,90 21. 33. 47,30 21. 57. 37,79 22. 56. 51,57 23. 6. 6,23 23. 11. 10,38 23. 39. 47,29 23. 50. 33,11 0. 0. 12,00 1. 2. 53,84 9. 59. 52,94		α Ophiuchi. χ <sup>2</sup> Capricorni. β Aquarii. α Capricorni. α Aquarii. α Pegasi. φ Aquarii. 96 Aquarii. α Piscium. ρ Piscium. α Andromedæ. Polaris. Regulus.

Error of Collimation -- 0",65.

Level Error -- 1",33. From Sept. 24 -- 2",29. The levelling of Oct. 6 gave the same result.

Meridian Error from Sept. 28 by Polaris SP Sept. 30 and Polaris Oct. 2, allowing + 3",75 for clock-rate and - 0",60 for change of *AL*.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Oct. 4	$\gamma$ 1 L.....	41,1	56,7	11,8	27,1	42,1	57,8	19. 41. 13,0		B.
	$\beta$ Aquilæ.....	37,2	50,9	4,2	18,1	31,7	45,1	19. 47. 58,6		B.
Oct. 5	(a) $\alpha$ Aquilæ.....	6,9	20,7	34,2	47,9	....	14,3	19. 43. 27,8	+ 2,27	B.
Oct. 6	(a) Polaris SP.....	37.36,8	....	54.20,2	2.43,4	11.10,7	19.23,2	13. ....	+ 1. 39,92	B.
	(b) Venus 1 L.....	47,0	0,7	14,7	28,5	42,3	56,0	14. 4. 10,0		B.
	Arcturus.....	25,1	39,4	53,8	8,1	22,3	36,9	14. 8. 51,1		B.
	$\alpha$ Herculis.....	26,2	40,0	53,7	8,0	21,9	35,7	17. 7. 49,4		B.
	$\alpha^2$ Capricorni.....(cloudy)	17,1	31,0	44,3	58,3	....	....	20. 8. ....	+ 20,74	B.
	$\eta$ Capricorni.....	22,9	37,1	51,1	5,8	20,2	34,5	20. 55. 49,1		B.
	$\delta$ Capricorni.....	59,7	13,7	27,1	41,3	55,1	9,3	21. 7. 23,1		B.
	$\gamma$ 1 L.....	14,2	28,7	43,0	57,6	12,0	26,3	21. 23. 40,8		B.
	$\epsilon$ Capricorni.....	18,4	32,2	46,3	0,9	15,0	28,8	21. 38. 42,9		B.
	$\epsilon$ Aquarii.....	54,2	7,9	21,8	36,0	49,8	3,7	21. 58. 17,8		B.
	$\alpha$ Pegasi.....	54,0	8,2	21,7	35,9	49,9	3,4	22. 57. 17,5		B.
	$\psi^1$ Aquarii.....	38,0	51,4	5,0	19,0	32,3	46,2	23. 7. 59,8		B.
	Uranus.....	59,0	12,7	25,9	39,6	53,0	6,8	23. 15. 20,1		B.
	$p$ Piscium.....	36,9	50,3	3,7	17,2	31,0	44,2	23. 50. 57,7		B.
	$q$ Piscium.....	45,2	58,8	12,1	25,9	39,2	52,9	23. 54. 6,3		B.
	$\alpha$ Andromedæ.....	10,1	25,3	40,5	56,0	10,9	26,5	0. 0. 41,8		B.
	Polaris.....	37.28,6	45.50,5	54. 3,2	2.34,3	10.55,8	19.19,5	1. 27. 42,2		B.
Oct. 7	(c) $\odot$ 1 L.....	30,2	44,0	57,2	10,9	24,3	38,0	12. 51. 51,5		B.
	$\odot$ 2 L..... (Temp. 49°)	39,8	53,1	6,7	20,2	....	....	12. 54. 1,1	+ 8,14	B.
	$\alpha$ Herculis.....	24,1	38,1	51,8	6,0	19,9	33,6	17. 7. 48,0		B.
	$\alpha$ Ophiuchi.....(cloudy)	34,1	48,0	1,7	15,6	29,2	43,0	17. 27. 56,8		B.
	(d) * N.P.D. 60°.25'.....	7,9	23,2	....	54,3	10,0	25,3	21. 1. 41,1	- 2,62	B.
	$\beta$ Aquarii.....	13,7	27,1	40,7	54,2	7,7	21,4	21. 23. 35,1		B.
	$\epsilon$ Capricorni.....	17,1	31,0	44,7	59,0	13,0	27,1	21. 38. 41,1		B.
	$\epsilon$ Aquarii.....	52,3	6,7	20,1	34,1	48,0	2,1	21. 58. 15,8		B.
	(e) $\gamma$ 1 L.....	29,8	43,8	57,9	12,0	26,0	39,9	22. 12. 54,0		B.
	$\eta$ Aquarii.....	14,0	27,6	41,1	54,5	8,1	21,4	22. 27. 34,9		B.
	$\lambda$ Aquarii.....	21,6	35,1	48,9	2,6	16,2	30,0	22. 44. 43,4		B.
	$\alpha$ Pegasi.....	52,1	6,2	19,9	34,0	48,0	1,9	22. 57. 15,7		B.
	$\psi^1$ Aquarii.....	36,0	49,7	3,2	17,0	30,8	44,3	23. 7. 58,1		B.
	(a) Uranus.....	49,7	3,2	16,5	30,2	43,5	57,2	23. 15. 11,0		B.
	$q$ Piscium.....	43,8	57,3	10,8	24,2	37,6	51,0	23. 54. 4,8		B.
	$\beta$ Leonis.....	55,1	9,0	22,9	37,0	50,8	4,7	11. 41. 19,0		B.
Oct. 8	$\odot$ 1 L.....	....	....	....	48,4	2,2	15,9	12. 55. 29,2	- 20,36	B.
	$\odot$ 2 L.....(cloudy)	17,8	31,2	44,7	58,4	12,0	25,7	12. 57. 39,0		B.
	Polaris SP.....	37.31,3	45.57,2	54.16,4	2.38,7	11. 7,8	19.19,6	13. ....	+ 4. 10,65	B.
	Mercury 1 L.....	35,1	48,9	2,2	16,2	29,7	43,7	13. 27. 57,1		B.
	Arcturus.....	21,8	36,0	50,2	4,6	19,2	33,2	14. 8. 47,6		B.
	$\epsilon$ Bootis.....	57,0	12,4	27,0	42,7	58,0	13,0	14. 38. 28,1		B.
	(f) * N.P.D. 60°.25'.....	6,8	22,0	37,0	52,6	8,0	23,5	21. 1. 39,1		B.
	$\beta$ Aquarii.....	11,9	25,4	39,2	52,8	6,4	19,6	21. 23. 33,0		B.
	$\alpha$ Aquarii.....	38,2	52,0	4,9	18,8	32,2	45,5	21. 57. 59,0		B.
	$\eta$ Aquarii.....	12,2	25,7	39,1	52,7	6,1	19,4	22. 27. 33,0		B.
	$\lambda$ Aquarii.....	19,9	33,4	46,9	0,7	14,3	27,7	22. 44. 41,4		B.
	(g) $\alpha$ Pegasi.....	50,6	4,4	18,2	32,1	46,1	0,1	22. 57. 14,1		B.
	$\gamma$ 1 L.....	21,7	35,4	49,2	3,2	17,1	31,0	23. 1. 44,9		B.
	$\psi^1$ Aquarii.....	34,7	48,1	1,4	15,1	28,6	42,3	23. 7. 56,2		B.
	Uranus.....	40,0	53,6	7,2	20,8	34,3	48,0	23. 15. 1,4		B.
	$\alpha^1$ Piscium.....	48,1	1,7	14,8	28,6	42,2	55,4	23. 19. 9,1		B.
	$\lambda$ Piscium.....	57,3	11,1	24,0	37,6	51,2	4,9	23. 34. 18,2		B.
	$q$ Piscium.....	41,7	55,1	8,9	22,2	35,9	49,3	23. 54. 2,8		B.
	(h) $\alpha$ Andromedæ.....	6,6	22,2	37,0	52,3	7,7	23,1	0. 0. 38,3		B.
	Polaris.....	37.20,3	45.49,7	53.57,2	2.31,6	10.52,7	19.16,5	1. 27. 39,3		B.
Oct. 9	(i) $\odot$ 1 L.....	46,3	59,7	13,2	26,9	40,4	54,1	12. 59. 7,7		B.
	$\odot$ 2 L.....	56,1	9,8	28,3	36,9	50,5	4,1	13. 1. 17,9		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.

(a) Cloudy. (b) Great motion. (c) Very cloudy. (d) Cloudy and very faint.  
 Wires II and VI have each been increased 1' from a consideration of the intervals. (e) Unsteadily.  
 (f) Extremely faint. (g) Blazing. (h) Flaring. (i) Much waving.

Concluded Transit over the Mean of the seven Wires.			Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.			Correction to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A.	M.	S.								A.	M.	S.		
19.	40.	27.09		- 0.75	27.03			1.67	10.95	19.	40.	39.35		$\gamma$ 1 L.
19.	47.	17.97			18.00	30.33	12.33			19.	47.	30.33	- 3.06	$\beta$ Aquilæ.
19.	42.	47.57			47.60	1.61	14.01	1.62	12.68	19.	43.	1.61	- 2.98	$\alpha$ Aquilæ.
13.	2.	42.78	39.81		38.63	33.00	14.37	1.70	14.17	1.	2.	53.72	- 43.11	Polaris SP.
14.	3.	28.46			28.44					14.	3.	43.61		Venus 1 L.
14.	8.	8.10			8.16	23.47	15.31			14.	8.	23.33	- 1.49	Arcturus.
17.	7.	7.83			7.91	23.26	15.35			17.	7.	23.29	- 2.02	$\alpha$ Herculis.
20.	8.	58.41			58.39	14.01	15.62			20.	9.	13.99	- 3.60	$\alpha^2$ Capricorni.
20.	55.	5.82			5.77					20.	55.	21.42	- 4.03	$\eta$ Capricorni.
21.	6.	41.32			41.29					21.	6.	56.96	- 3.95	$\epsilon$ Capricorni.
21.	22.	57.52			57.48					21.	23.	13.16		$\gamma$ 1 L.
21.	38.	0.64			0.60					21.	38.	16.30	- 4.09	$\delta$ Capricorni.
21.	57.	35.89			35.86					21.	57.	51.58	- 4.11	$\iota$ Aquarii.
22.	56.	35.80			35.85	51.56	15.71			22.	56.	51.64	- 3.80	$\alpha$ Pegasi.
23.	7.	18.82			18.80					23.	7.	34.61	- 4.17	$\phi^1$ Aquarii.
23.	14.	39.59			39.59					23.	14.	55.41		Uranus.
23.	50.	17.29			17.29					23.	50.	33.14	- 4.15	$p$ Piscium.
23.	53.	25.77			25.77					23.	53.	41.63	- 4.15	$q$ Piscium.
23.	59.	55.87			55.96	11.79	15.83			0.	0.	11.83	- 4.00	$\alpha$ Andromedæ.
1.	2.	33.44	36.61		37.71	33.02	15.31		15.87	1.	2.	53.65	- 43.13	Polaris.
12.	51.	10.87		- 0.57	15.61			1.73	15.93	12.	52.	32.47		$\odot$ 's center.
12.	53.	20.32			6.00	23.24	17.24			17.	7.	23.16	- 2.00	$\alpha$ Herculis.
17.	7.	5.93			15.54	32.71	17.17			17.	27.	32.73	- 2.13	$\alpha$ Ophiuchi.
17.	27.	13.49			54.44					21.	1.	11.88	- 2.90	$\star$ N.P.D. 60°. 25'.
21.	0.	54.35			54.28	11.75	17.47			21.	23.	11.75	- 3.77	$\beta$ Aquarii.
21.	22.	54.27			58.97					21.	38.	16.46	- 4.08	$\delta$ Capricorni.
21.	37.	39.00			34.14					21.	57.	51.65	- 4.09	$\iota$ Aquarii.
21.	57.	34.16			11.91					22.	12.	29.44		$\gamma$ 1 L.
22.	12.	11.91			54.53					22.	27.	12.08	- 3.90	$\eta$ Aquarii.
22.	26.	54.51			2.55					22.	44.	20.12	- 4.10	$\lambda$ Aquarii.
22.	44.	2.54			34.03	51.56	17.53			22.	56.	51.61	- 3.80	$\alpha$ Pegasi.
22.	56.	33.97			17.02					23.	7.	34.62	- 4.17	$\phi^1$ Aquarii.
23.	7.	17.02			30.19					23.	14.	47.80		Uranus.
23.	14.	30.18			24.22					23.	53.	41.87	- 4.16	$q$ Piscium.
23.	53.	24.21			37.00	55.55	18.55	1.77	17.58	11.	40.	55.43	- 1.86	$\beta$ Leonis.
11.	40.	36.93			53.49					12.	56.	12.02		$\odot$ 's center.
12.	54.	48.56			35.28	53.03	17.75			1.	2.	53.82	- 43.14	Polaris SP.
12.	56.	38.40	36.18		16.14					13.	27.	34.72		Mercury 1 L.
13.	2.	39.15			4.75	23.47	18.74			14.	8.	23.35	- 1.49	Arcturus.
13.	27.	16.13			42.69	1.40	18.71			14.	38.	1.35	- 1.41	$\epsilon$ Bootis.
14.	8.	4.66			52.80					21.	1.	11.93	- 2.88	$\star$ N.P.D. 60°. 25'.
14.	37.	42.60			52.62	11.74	19.12			21.	23.	11.78	- 3.76	$\beta$ Aquarii.
21.	0.	32.71			18.68	37.75	19.07			21.	57.	37.88	- 3.79	$\alpha$ Aquarii.
21.	22.	52.61			0.62					22.	27.	11.85	- 3.89	$\eta$ Aquarii.
21.	37.	18.66			32.29	51.55	19.26			22.	44.	19.88	- 4.10	$\lambda$ Aquarii.
22.	26.	52.60			3.22					22.	56.	51.56	- 3.79	$\alpha$ Pegasi.
22.	44.	0.61			15.20					23.	1.	22.50		$\gamma$ 1 L.
22.	56.	32.23			20.76					23.	7.	34.49	- 4.15	$\phi^1$ Aquarii.
23.	1.	3.21			28.58					23.	14.	40.06		Uranus.
23.	7.	15.20			37.79					23.	18.	47.88	- 4.03	$\alpha^1$ Piscium.
23.	14.	20.75			22.28					23.	53.	57.11	- 4.06	$\lambda$ Piscium.
23.	18.	24.56			32.54	11.79	19.25			23.	53.	41.62	- 4.16	$q$ Piscium.
23.	33.	37.76			33.63	53.04	19.41			0.	0.	11.89	- 4.00	$\alpha$ Andromedæ.
23.	53.	22.27							19.35	1.	2.	53.05	- 43.15	Polaris.
23.	59.	52.45	32.74											
1.	2.	39.61			31.96			1.94	19.30	12.	59.	52.31		$\odot$ 's center.
12.	58.	36.90		0.00										
13.	0.	36.94												

Error of Collimation = - 0".65.

Level Error = + 2".29.

Meridian Error from Oct. 4 by Polaris SP and Polaris Oct. 6, allowing + 0".94 for clock-rate, and - 0".02 for change of  $\Delta t$ .

The three sets of three consecutive transits of Polaris Oct. 8-10 give for Meridian Error - 0".57, - 0".12, and + 0".11.

The first is used from Oct. 7 and the mean of the other two from Oct. 9.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
Oct. 9	Polaris SP.....	37.30,2	45.51,7	54.17,4	2.29,7	11. 2,8	19.17,2	13. 27. 41,6	- 13,87	B.
	Mercury 1 L.....	29,5	43,5	57,0	10,6	24,4	38,2	13. 33. 52,0		B.
	Arcturus.....	20,1	34,3	47,9	2,9	17,0	31,4	14. 8. 46,1		B.
	Venus 1 L.....	53,9	7,5	21,1	35,2	49,0	3,0	14. 18. 17,0		B.
	ε Bootis.....	55,2	10,7	25,2	40,9	56,2	11,7	14. 38. 26,4		B.
	α Herculis.....(cloudy)	.....	.....	48,2	2,7	16,4	30,3	17. 7. 44,1		B.
	α Ophiuchi.....	30,4	44,0	57,6	11,9	25,8	39,4	17. 27. 53,1		B.
	(a) * N.P.D. 60°. 25'.....	4,2	20,1	35,1	50,6	6,2	21,7	21. 1. 37,0		B.
	β Aquarii.....	9,8	23,5	37,2	50,8	4,2	17,7	21. 23. 31,3		B.
	α Aquarii.....	36,1	49,7	3,2	16,8	30,1	43,3	21. 57. 57,1		B.
	α Pegasi.....	49,2	2,8	16,4	30,4	44,0	57,8	22. 57. 12,3		B.
	(b) Uranus.....	30,4	44,2	58,2	11,6	25,2	38,4	23. 14. 51,9		B.
	κ <sup>1</sup> Piscium.....	46,3	59,6	13,2	26,9	40,2	53,9	23. 19. 7,2		B.
	λ Piscium.....	55,7	9,1	22,4	35,9	49,3	3,0	23. 34. 16,3		B.
	γ 1 L.....	53,7	7,3	21,0	35,0	48,9	2,4	23. 51. 16,0		B.
	α Andromedæ.....	4,9	20,0	35,1	50,5	6,0	21,0	0. 0. 36,0		B.
	B Piscium.....	46,9	0,1	13,7	27,2	40,9	54,3	0. 7. 8,1		B.
	(c) Polaris.....	37.22,5	45.46,8	53.58,2	2.32,4	10.51,3	19.15,7	1. 27. 36,5	+ 0,27	B.
	(a) β Leonis.....	51,0	5,4	19,0	33,1	47,0	1,4	11. 41. 15,1		B.
	(c) Polaris SP.....	37.26,8	45.49,8	54.14,5	.....	11. 4,7	19.14,3	13. 27. 32,6		B.
Oct. 10	(c) ☉ 1 L.....	24,9	38,9	52,3	6,0	19,4	32,9	13. 2. 46,3	B.	B.
	☉ 2 L.....	34,9	48,7	2,2	16,0	29,4	43,0	13. 4. 56,5		B.
	(d) Mercury 1 L.....	23,0	36,9	50,5	4,2	17,9	31,7	13. 39. 45,4		B.
	Venus 1 L.....	37,9	51,7	5,2	19,3	33,4	47,2	14. 23. 1,1		B.
	β Aquarii.....	8,1	21,5	35,1	48,8	2,2	16,1	21. 23. 29,0		B.
	α Aquarii.....	34,0	47,9	1,2	14,6	28,2	41,5	21. 57. 54,9		B.
	α Pegasi.....	46,9	0,5	14,1	28,2	42,2	56,0	22. 57. 10,1		B.
	Uranus.....	21,8	35,2	48,7	2,2	15,5	29,2	23. 14. 42,7		B.
	B Piscium.....	44,8	58,2	11,8	25,2	39,0	52,7	0. 7. 6,1		B.
	γ 1 L.....	16,8	30,9	44,7	58,8	12,5	26,2	0. 42. 40,5		B.
	ε Piscium.....	38,9	52,2	6,1	19,7	33,2	46,8	0. 55. 0,3		B.
	η Piscium.....	54,9	9,2	23,3	37,1	50,9	4,5	1. 23. 18,4		B.
Oct. 11	ε Piscium.....	37,1	50,9	3,9	17,6	31,0	44,8	0. 54. 58,2	B.	B.
	η Piscium.....	53,1	7,3	20,9	34,8	48,7	2,8	1. 23. 16,7		B.
	γ 2 L.....	6,1	20,3	34,7	48,9	3,1	17,5	1. 39. 31,9		B.
	α Arietis.....	5,2	19,9	34,2	49,2	3,9	18,2	1. 58. 33,2		B.
	θ <sup>1</sup> Arietis.....	10,6	24,7	38,7	53,1	7,4	21,7	2. 9. 36,1		B.
	ψ Arietis.....	59,1	13,1	27,0	41,2	55,7	9,6	2. 22. 23,6		B.
Oct. 12	☉ 1 L.....	43,6	57,3	10,7	24,4	38,1	51,9	13. 10. 5,4	B.	B.
	☉ 2 L.....	54,0	7,7	21,1	34,8	48,4	2,0	13. 12. 15,6		B.
	(e) Arcturus.....	14,4	28,6	42,6	56,9	11,4	25,8	14. 8. 39,9		B.
	(f) Venus 1 L.....	8,8	22,9	36,5	50,9	5,0	18,7	14. 32. 32,9		B.
	α Ophiuchi.....	24,6	38,1	51,9	5,8	19,6	33,3	17. 27. 47,0		B.
	α Arietis.....	3,4	18,1	32,1	47,2	1,9	16,2	1. 58. 30,7		B.
	θ <sup>1</sup> Arietis.....	8,4	22,9	36,6	50,9	5,2	19,5	2. 9. 34,1		B.
	ψ Arietis.....	57,2	11,2	25,1	39,4	53,4	7,7	2. 22. 21,5		B.
	(g) γ 2 L.....	47,5	2,2	16,4	31,5	46,4	1,1	2. 38. 16,0		B.
	α Ceti.....	52,0	5,3	18,1	32,0	45,4	58,9	2. 54. 12,3		B.
	δ Arietis.....	23,8	38,1	52,0	6,4	20,7	34,9	3. 2. 49,2		B.
	g Arietis.....	45,1	0,3	14,1	29,2	44,0	58,9	3. 15. 13,7		B.
	β Leonis.....	45,7	59,4	13,1	27,3	41,3	55,2	11. 41. 9,0		B.
Oct. 13	(h) ☉ 1 L.....	23,3	36,9	50,9	4,9	18,4	32,0	13. 13. 45,5	- 13,87	B.
	☉ 2 L.....	34,4	47,9	1,1	15,1	28,7	42,3	13. 15. 56,0		B.
	(i) Mercury 1 L.....	56,3	10,2	23,6	37,9	51,2	5,2	13. 57. 18,8		B.
	(h) Arcturus.....	12,0	26,2	40,5	55,0	9,3	23,7	14. 8. 38,1		B.
	(h) Venus 1 L.....	56,2	10,1	24,0	38,1	52,1	6,0	14. 37. 19,8		B.
	α Herculis.....(cloudy)	.....	.....	40,3	54,4	8,5	22,3	17. 7. 36,0		B.
	α Ophiuchi.....	22,4	36,3	49,8	4,0	17,8	31,5	17. 27. 45,3		B.
	β Leonis.....	43,9	57,4	11,2	25,5	39,4	53,4	11. 41. 7,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.  
The Transit was levelled Oct. 13, 2<sup>h</sup>.

- (a) Very faint.  
(b) Wire IV marked doubtful.  
(c) Extremely unsteady.  
(d) Very faint and unsteady.  
(e) Cloudy.

- (f) Cloudy and unsteady.  
(g) Ragged.  
(h) Great motion.  
(i) Unsteady and very faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
13. 2. 35.80	32.83	0.00	32.83	53.05	20.22	1.94	19.30	1. 2. 53.18	- 43.16	Polaris SP.
13. 33. 10.74			10.77					13. 33. 31.17		Mercury 1 L.
14. 8. 2.81			2.90	23.47	20.57			14. 8. 23.34	- 1.49	Arcturus.
14. 17. 35.24			35.26					14. 17. 55.71		Venus 1 L.
14. 37. 40.90			41.01	1.39	20.38			14. 38. 1.49	- 1.40	$\epsilon$ Bootis.
17. 7. 2.47			2.56	23.21	20.65			17. 7. 23.24	- 1.97	$\alpha$ Herculis.
17. 27. 11.74			11.82	32.68	20.86			17. 27. 32.53	- 2.10	$\alpha$ Ophiuchi.
21. 0. 50.70			50.81					21. 1. 11.81	- 2.86	* N.P.D. 60°. 25'.
21. 22. 50.64			50.68	11.73	21.05			21. 23. 11.71	- 3.75	$\beta$ Aquarii.
21. 57. 16.62			16.67	37.74	21.07			21. 57. 37.74	- 3.78	$\alpha$ Aquarii.
22. 56. 30.41			30.49	51.55	21.06			22. 56. 51.64	- 3.79	$\alpha$ Pegasi.
23. 14. 11.41			11.45					23. 14. 32.63		Uranus.
23. 18. 26.76			26.81					23. 18. 48.00	- 4.03	$\epsilon$ Piscium.
23. 33. 35.96			36.02					23. 33. 57.23	- 4.05	$\lambda$ Piscium.
23. 50. 34.90			34.96					23. 50. 56.19		$\eta$ 1 L.
23. 59. 50.50			50.61	11.79	21.18			0. 0. 11.85	- 4.00	$\alpha$ Andromedæ.
0. 6. 27.32			27.39				21.24	0. 6. 48.64	- 4.07	B Piscium.
1. 2. 28.99	32.16		32.16	53.07	20.91			1. 2. 53.48	- 43.18	Polaris.
11. 40. 33.14			33.24	55.58	22.34	2.00	21.25	11. 40. 55.46	- 1.89	$\beta$ Leonis.
13. 2. 34.05	30.81		30.81	53.09	22.28			1. 2. 53.14	- 43.20	Polaris SP.
13. 2. 5.81			10.85					13. 3. 33.19		$\odot$ 's center.
13. 4. 15.81			4.27					13. 39. 26.66		Mercury 1 L.
13. 39. 4.23			19.43					14. 22. 41.88		Venus 1 L.
14. 22. 19.40			48.74	11.71	22.97			21. 23. 11.77	- 3.73	$\beta$ Aquarii.
21. 22. 48.69			14.67	37.73	23.06			21. 57. 37.75	- 3.77	$\alpha$ Aquarii.
21. 57. 14.61			28.38	51.54	23.16			22. 56. 51.54	- 3.78	$\alpha$ Pegasi.
22. 56. 28.29			2.23					23. 14. 25.42		Uranus.
23. 14. 2.18			25.48				23.25	0. 6. 48.74	- 4.08	B Piscium
0. 6. 25.40			58.71					0. 42. 22.02		$\eta$ 1 L.
0. 41. 58.63			19.68					0. 54. 43.01	- 4.17	$\epsilon$ Piscium.
0. 54. 19.60			36.99					1. 23. 0.36	- 4.22	$\eta$ Piscium.
1. 22. 36.90			17.73			2.01	25.03	0. 54. 42.86	- 4.18	$\epsilon$ Piscium.
0. 54. 17.63			34.99					1. 23. 0.16	- 4.23	$\eta$ Piscium.
1. 22. 34.90			49.02					1. 39. 14.21		$\eta$ 2 L.
1. 38. 48.93			49.22	14.43	25.21			1. 58. 14.44	- 4.36	$\alpha$ Arietis.
1. 57. 49.12			53.27					2. 9. 18.50	- 4.33	$\theta$ Arietis.
2. 8. 53.18			41.41					2. 22. 6.66	- 4.31	$\psi$ Arietis.
2. 21. 41.32			29.69			2.06	25.15	13. 10. 55.97		$\odot$ 's center.
13. 9. 24.49			57.19	23.47	26.28			14. 8. 23.55	- 1.49	Arcturus.
13. 11. 34.80			50.84					14. 32. 17.24		Venus 1 L.
14. 7. 37.09			5.85	32.64	26.79			17. 27. 32.50	- 2.06	$\alpha$ Ophiuchi.
14. 31. 50.81			17.19	14.43	27.26		27.21	1. 58. 14.57	- 4.38	$\alpha$ Arietis.
17. 27. 5.76			51.17					2. 9. 18.56	- 4.35	$\theta$ Arietis.
1. 37. 47.09			39.45					2. 22. 6.86	- 4.33	$\psi$ Arietis.
2. 8. 51.08			31.68					2. 37. 59.11		$\eta$ 2 L.
2. 21. 39.36			32.07	59.60	27.53			2. 53. 59.53	- 4.15	$\alpha$ Ceti.
2. 57. 31.58			6.53					3. 2. 34.00	- 4.36	$\delta$ Arietis.
2. 53. 32.00			29.44					3. 14. 56.92	- 4.45	$\gamma$ Arietis.
3. 2. 6.44			27.39	55.64	28.25	1.96	27.26	11. 40. 55.60	- 1.95	$\beta$ Leonis.
3. 14. 29.33										
11. 40. 27.29										
13. 13. 4.56			9.86					13. 14. 38.20		$\odot$ 's center.
13. 15. 15.07			37.63					13. 37. 6.02		Mercury 1 L.
13. 56. 37.60			55.07	23.47	28.40			14. 8. 23.48	- 1.49	Arcturus.
14. 7. 54.97			38.08					14. 37. 6.53		Venus 1 L.
14. 36. 38.05			54.52	23.16	28.54			17. 7. 23.18	- 1.92	$\alpha$ Herculis.
17. 6. 54.43			5.96	32.63	28.67			17. 27. 32.65	- 2.05	$\alpha$ Ophiuchi.
17. 27. 3.87			23.54	55.65	30.11	1.87	29.18	11. 40. 55.63	- 1.96	$\beta$ Leonis.

Error of Collimation = 0".65

Level Error = + 2".29. From  $\beta$  Leonis Oct. 9 = + 2".45.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s. s.		
Oct. 14	⊙ 1 L.....	4,4	18,0	31,6	45,3	59,0	12,6	13. 17. 26,0		B.
	⊙ 2 L.....	15,3	28,1	42,1	56,0	9,4	23,0	13. 19. 36,9		B.
	(a) Mercury 1 L.....	45,4	59,3	13,0	27,1	40,9	54,4	14. 3. 9,0		B.
	Arcturus.....	10,3	24,4	38,6	53,0	7,4	21,7	14. 8. 35,9		B.
	ε Bootis.....	45,7	0,6	15,5	31,1	46,4	1,5	14. 38. 16,3		B.
	(b) Venus 1 L.....	44,7	58,9	12,4	27,1	41,3	55,3	14. 42. 9,2		B.
Oct. 15	(c) ⊙ 1 L.}..... (Temp 51°)	46,0	0,1	13,3	27,0	40,3	54,0	13. 21. 8,0		B.
	⊙ 2 L.}.....	56,3	10,2	23,6	37,4	51,2	5,0	13. 23. 18,8		B.
Oct. 18	(b) Polaris SP.....	37.11,4	.....	.....	.....	.....	19. 3,7	13. 27. 28,2	- 5. 33,04	B.
Oct. 19	β Leonis.....	32,5	46,6	0,4	14,5	29,0	42,8	11. 40. 56,5		B.
	(b) Polaris SP.....	37.11,2	45.33,2	53.54,3	2.18,7	10.49,8	19. 2,5	13. 27. 26,5		B.
Oct. 20	(b) ⊙ 1 L.....	21,9	35,7	49,2	3,0	16,4	30,1	13. 39. 43,9		B.
	⊙ 2 L.....	33,1	47,0	0,4	14,5	28,2	42,0	13. 41. 55,8		B.
	Arcturus.....	59,0	13,9	27,6	42,2	56,4	10,9	14. 8. 25,3		B.
	Mercury 1 L.....	31,3	45,4	59,2	13,9	28,0	41,8	14. 37. ....	+ 7,05	B.
	Venus 1 L.....	1,0	15,3	29,2	43,6	58,0	12,1	15. 11. 26,1		B.
	α Herculis.....	59,9	13,8	27,4	41,7	55,4	9,5	17. 7. 23,2		B.
	α Ophiuchi.....	9,6	23,4	37,0	50,9	4,7	18,6	17. 27. 32,2		B.
	(d) Polaris.....	37. 1,5	45.24,7	53.38,4	2.10,8	10.29,2	18.52,7	1. 27. 16,3		B.
	α Pegasi.....	24,1	37,9	51,7	5,7	19,7	33,2	22. 56. 47,2		B.
	α Andromedæ.....	40,1	55,5	10,7	26,0	41,0	56,6	0. 0. 12,3		B.
Oct. 22	(e) Polaris.....	36.59,2	45.23,2	53.36,8	2. 7,3	10.30,5	.....	1. 27. 13,4	+ 2. 47,54	B.
	(e) Polaris SP.....	37. 3,3	45.24,7	53.47,7	.....	.....	.....	13. ....	+ 16. 45,42	B.
Oct. 24	(c) ⊙ 1 L.}..... (Temp. 47°)	25,5	39,8	53,2	.....	21,0	34,9	13. 54. 48,7	+ 0,01	B.
	⊙ 2 L.}.....	.....	.....	5,4	19,3	33,1	47,0	13. 57. 1,0	- 13,76	B.
Oct. 26	(f) ⊙ 1 L.}..... (Temp 43°)	1,7	15,5	29,1	43,2	57,0	10,7	14. 2. 24,9		B.
	⊙ 2 L.}.....	14,5	28,2	42,1	56,1	10,0	23,8	14. 4. 37,5		B.
Oct. 28	α Herculis.....	44,0	57,7	11,8	25,6	40,0	53,2	17. 7. 7,2		B.
	α Ophiuchi.....	53,7	7,3	.....	35,0	49,0	2,7	17. 27. 16,1	- 2,30	B.
	α Aquilæ..... (blazing)	22,7	36,6	50,2	3,9	17,3	30,9	19. 42. 44,2		B.
	β Aquilæ.....	51,6	5,0	18,7	32,1	46,0	59,3	19. 47. 13,1		B.
	α Capricorni.....	34,2	48,0	2,0	16,0	29,7	43,9	20. 8. 57,3		B.
	β Aquarii.....	33,0	46,4	0,1	13,7	27,2	40,7	21. 22. 54,1		B.
	α Aquarii.....	59,0	12,8	26,2	39,4	55,0	6,8	21. 57. 20,2		B.
	α Pegasi.....	12,0	25,4	39,4	53,3	7,4	21,0	22. 56. 35,1		B.
	Polaris.....	36.40,6	45. 3,2	53.30,2	1.49,3	10.19,7	18.34,3	1. 26. 57,4		B.
	(g) α Pegasi.....	9,9	23,4	37,0	51,1	5,3	19,0	22. 56. 32,9		B.
Oct. 29	Arcturus.....	39,1	53,3	7,8	22,0	36,4	50,8	14. 8. 5,1		B.
Oct. 30	(h) ⊙ 1 L.....	22,7	36,4	50,2	4,1	18,3	32,0	14. 17. 45,6		B.
	⊙ 2 L.....	36,2	50,0	4,0	17,8	32,1	45,8	14. 19. 59,8		B.
	ε Bootis.....	14,1	29,3	44,8	0,0	15,4	30,1	14. 37. 45,3		B.
	α Ophiuchi.....	49,0	3,0	17,0	30,7	44,8	58,1	17. 28. 12,0		B.
	α Pegasi.....	7,4	21,3	35,0	49,0	3,3	16,9	22. 57. 30,7		B.
	Polaris.....	37.38,5	46. 0,8	54.28,4	2.44,7	11.15,0	19.30,7	1. 27. 54,4		B.
Oct. 31	β Aquarii.....	26,2	40,2	53,5	7,3	20,9	33,9	21. 23. 47,8		B.
	α Aquarii.....	52,9	6,3	19,8	33,2	47,0	0,2	21. 58. 13,5		B.
	α Pegasi.....	5,3	19,2	33,3	47,2	1,0	14,8	22. 57. 28,9		B.
Nov. 2	(i) Venus 1 L.....	55,2	10,0	24,3	39,0	53,9	.....	16. 17. ....	+ 14,55	B.
	α Herculis.....	32,8	46,9	0,7	14,8	28,9	42,2	17. 7. 56,0		B.
	α Ophiuchi.....	42,8	56,3	10,1	24,0	38,0	51,4	17. 28. 5,3		B.
	α Capricorni.....	23,9	37,2	51,1	4,9	19,1	32,5	20. 9. 46,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEF*G.From Oct. 28. .... WEST. .... *GFEDCBA*.The Transit was levelled, Oct. 23, 1<sup>h</sup>, Oct. 26, just before and after the reversion, and Nov. 3, 3<sup>h</sup>.Oct. 26, 23<sup>h</sup>. The Transit was reversed and the error of collimation determined. Oct. 30, 2<sup>h</sup>, the clock was put forward 1<sup>m</sup>.

(a) Faint, unsteady. (b) Great motion. (c) Faint on account of haze. (d) Flaring, with very great motion. (e) Cloudy. (f) Hazy and unsteady. (g) Not used for clock-error. (h) Unsteady, with much glare. (i) Very cloudy.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
13. 16. 45.27		0.00	50.39			1.87	29.18	13. 18. 20.80		☉'s center.
13. 18. 55.83			27.05					14. 2. 57.32		Mercury 1 L.
14. 2. 27.02			53.14	23.47	30.33			14. 8. 23.42	- 1.49	Arcturus.
14. 7. 53.04			31.13	1.37	30.24			14. 38. 1.45	- 1.38	♄ Bootis.
14. 37. 31.01			27.01					14. 41. 57.33		Venus 1 L.
14. 41. 26.99										
13. 20. 26.96			32.27				31.05	13. 22. 4.36		☉'s center.
13. 22. 37.50										
13. 2. 21.39	17.65	- 1.00	16.08	53.52	37.44	1.83	38.35	1. 2. 55.42	- 43.63	Polaris SP.
11. 40. 14.61			14.68	55.76	41.08		40.18	11. 40. 55.75	- 2.07	β Leonis.
13. 2. 19.46	15.72		14.15	53.37	39.22			1. 2. 55.32	- 43.48	Polaris SP.
13. 39. 2.88			8.65					13. 40. 49.87		☉'s center.
13. 41. 14.43			42.25	23.49	41.24			14. 8. 23.50	- 1.51	Arcturus.
14. 7. 42.18			13.60					14. 37. 54.89		Mercury 1 L.
14. 37. 13.63			43.55					15. 11. 24.89		Venus 1 L.
13. 10. 43.61			41.62	23.06	41.44			17. 7. 23.10	- 1.82	α Herculis.
17. 6. 41.55			50.97	32.53	41.56			17. 27. 32.48	- 1.95	α Ophiuchi.
17. 26. 50.91			13.10	53.29	40.19		42.01	1. 2. 55.19	- 43.40	Polaris.
1. 2. 7.66	11.63									
22. 56. 5.64		+ 0.66	5.78	51.45	45.67	1.89	43.78	22. 56. 51.36	- 3.69	α Pegasi.
23. 59. 25.03			26.19	11.77	45.58			0. 0. 11.86	- 3.98	α Andromedæ.
1. 2. 5.94	9.91		8.94	53.02	44.08		45.67	1. 2. 54.69	- 43.13	Polaris.
13. 2. 10.63	6.91		7.95	52.97	45.02			1. 2. 54.64	- 43.08	Polaris SP.
13. 54. 7.19			13.38			2.05	47.68	13. 56. 2.25		☉'s center.
13. 56. 19.40										
14. 1. 43.16			49.68				51.78	14. 3. 42.66		☉'s center.
14. 3. 56.03										
17. 6. 25.64		- 0.36	25.70	22.97	57.27	2.13	55.88	17. 7. 23.09	- 1.73	α Herculis.
17. 26. 35.00			35.06	32.43	57.37			17. 27. 32.49	- 1.85	α Ophiuchi.
19. 42. 3.69			3.74	1.24	57.50			19. 43. 1.37	- 2.61	α Aquilæ.
19. 46. 32.23			32.28	29.95	57.67			19. 47. 29.92	- 2.68	β Aquilæ.
20. 8. 15.87			15.89	13.68	57.79			20. 9. 13.56	- 3.27	α Capricorni.
21. 22. 13.60			13.63	11.48	57.85			21. 23. 11.40	- 3.50	β Aquarii.
21. 56. 39.63			39.66	37.52	57.86			21. 57. 37.48	- 3.56	α Aquarii.
22. 55. 53.37	53.45		53.43	51.40	57.97			22. 56. 51.35	- 3.64	α Pegasi.
1. 1. 50.67	53.29		53.82	52.65	58.83		58.01	1. 2. 51.92	- 42.76	Polaris.
22. 55. 51.22			51.28	51.39	60.11	2.11	58.06	22. 56. 51.35	- 3.63	α Pegasi.
14. 7. 22.07			22.15	23.54	61.39		60.17	14. 8. 23.56	- 1.56	Arcturus.
14. 17. 4.19			11.10					14. 19. 12.53		☉'s center.
14. 19. 17.96										
14. 36. 39.83			59.94	1.38	61.44			14. 38. 1.39	- 1.39	♄ Bootis.
17. 27. 30.63			30.71	32.41	1.70		0.17	17. 27. 32.42	- 1.83	α Ophiuchi.
22. 56. 49.09	49.17		49.15	51.38	2.23			22. 56. 51.34	- 3.62	α Pegasi.
1. 2. 47.50	50.12		50.63	52.37	1.72		2.28	1. 2. 53.02	- 42.48	Polaris.
21. 23. 7.12			7.13	11.43	4.28	2.15	2.24	21. 23. 11.30	- 3.45	β Aquarii.
21. 57. 35.27			35.30	37.48	4.18			21. 57. 37.50	- 3.52	α Aquarii.
22. 56. 47.10			47.16	51.37	4.21			22. 56. 51.45	- 3.61	α Pegasi.
16. 17. 39.03			39.02			2.20	6.76	16. 17. 47.27		Venus 1 L.
17. 7. 14.61			14.66	22.93	8.27			17. 7. 22.99	- 1.69	α Herculis.
17. 27. 23.99			24.03	32.39	8.36			17. 27. 32.39	- 1.81	α Ophiuchi.
20. 9. 3.00			3.01	13.61	8.60			20. 9. 13.62	- 3.20	α Capricorni.

Errors of Collimation = 0".55. From Oct. 20 = - 0".14.

Level Error = 0".63. From Oct. 18 = 0".00. From Oct. 28 = 0".51, by the levelling after reversion. From Nov. 2 = 0".41.

The Meridian Error by Polaris SP Oct. 18 and Polaris Oct. 28, allowing 0".72 for clock-rate and 0".22 for change of R.A. = 0".92.

That by Polaris SP Oct. 19 and Polaris Oct. 20, allowing 0".92 for clock-rate and 0".08 for change of R.A. = 1".00. The latter is used from Oct. 18.

Meridian Error from Oct. 21 by Polaris and Polaris SP Oct. 22, allowing 0".92 for clock-rate and 0".03 for change of R.A.

The Meridian Error by Polaris and α Pegasi Oct. 22 = 0".97, by the same stars Oct. 20 = 0".18, allowing 0".18 for clock-rate. The mean of these is used from Oct. 20.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		PM. S.	PM. S.	PM. S.	PM. S.	PM. S.	PM. S.	A. PM. S.		
Nov. 2	$\nu$ Capricorni.....	8,2	22,3	37,0	51,0	5,1	19,0	20. 31. 33,1		B.
	(a) $\delta$ 1 L.....	22,9	37,4	52,1	7,0	21,3	35,5	21. 1. 50,1		B.
	$\beta$ Aquarii.....	22,1	35,4	49,2	2,8	16,2	30,0	21. 23. 43,2		B.
	$\gamma$ Capricorni.....	25,8	39,9	54,1	8,0	22,3	36,2	21. 31. 50,2		B.
	$\delta$ Capricorni.....	25,0	39,2	53,1	7,2	21,1	35,0	21. 38. 49,2		B.
	$\alpha$ Aquarii.....	48,0	1,7	15,1	28,7	42,2	55,4	21. 58. 8,9		B.
	Uranus.....	21,7	35,1	48,9	2,2	16,0	29,1	23. 12. 42,9		B.
	$\beta$ Cassiopeiae.....	19,0	44,6	10,2	35,6	1,9	26,9	0. 1. 52,8		B.
	10 Ceti.....	40,0	53,4	7,2	20,5	34,0	47,2	0. 19. 0,9		B.
	$\eta$ Cassiopeiae.....	9,4	34,2	59,0	23,2	48,5	12,9	0. 40. 37,5		B.
	36 Andromedæ.....	36,1	50,8	5,2	20,1	34,7	49,1	0. 47. 3,6		B.
	$\xi$ Andromedæ.....	55,6	14,7	33,4	52,3	11,7	30,0	1. 13. 49,1		B.
	* N.P.D. 56°. 39'.....	55,7	12,1	28,0	43,8	0,1	16,1	1. 22. 32,0		B.
	* N.P.D. 59°. 40'.....	17,7	33,0	48,9	4,3	20,0	35,2	1. 33. 51,1		B.
	$\alpha$ Trianguli.....	8,0	23,0	38,5	54,0	9,6	24,7	1. 44. 40,0		B.
	$\alpha$ Arietis.....	21,8	36,0	51,0	5,4	20,2	34,4	1. 58. 49,0		B.
Nov. 4	$\alpha$ Capricorni.....	19,0	33,0	46,7	0,7	14,8	28,1	20. 9. 42,0		B.
	$\beta$ Aquarii.....	17,7	31,2	44,7	58,3	12,1	25,4	21. 23. 39,0		B.
	$\alpha$ Aquarii.....	44,0	57,3	11,0	24,2	38,1	51,2	21. 58. 5,0		B.
	$\theta$ Aquarii.....	33,0	46,7	0,2	14,1	27,9	41,1	22. 8. 55,0		B.
	$\sigma$ Aquarii.....	.....	.....	47,6	1,3	15,2	29,2	22. 22. 42,8	- 13,74	B.
	$\delta$ 1 L.....	54,2	8,1	22,0	36,0	50,2	3,8	22. 38. 17,4		B.
	$\pi$ Piscium.....	36,0	49,3	2,9	16,2	29,9	43,1	22. 52. 56,6		B.
	$\alpha$ Pegasi.....	56,4	10,3	24,2	38,2	52,0	6,1	22. 57. 19,9		B.
	$\gamma$ Piscium.....	2,8	16,1	29,6	43,1	56,8	10,2	23. 9. 23,4		B.
	Uranus.....	9,1	22,6	36,3	50,2	4,0	17,2	23. 12. 30,8		B.
	$\beta$ Cassiopeiae.....	14,8	40,2	6,0	31,5	57,9	23,0	0. 1. 48,7		B.
	10 Ceti.....	36,0	49,2	2,7	16,2	29,8	42,9	0. 18. 56,5		B.
	$\eta$ Cassiopeiae.....	5,0	29,9	54,3	19,0	44,1	8,6	0. 40. 33,3		B.
	36 Andromedæ.....	31,8	46,3	1,0	15,6	30,4	45,0	0. 46. 59,2		B.
	$\xi$ Andromedæ.....	51,3	10,1	29,0	48,1	7,6	26,3	1. 13. 45,2		B.
	* N.P.D. 56°. 39'.....	51,5	8,0	23,1	39,7	56,1	11,9	1. 22. 28,0		B.
	* N.P.D. 59°. 40'.....	13,5	28,9	44,3	0,0	15,9	31,0	1. 33. 46,9		B.
	$\alpha$ Trianguli.....	3,8	19,2	34,0	49,8	5,4	20,9	1. 44. 35,9		B.
	$\alpha$ Arietis.....	17,6	32,0	46,7	1,2	16,1	30,5	1. 58. 45,0		B.
Nov. 5	(b) $\odot$ 1 L.....	46,3	0,4	14,3	28,4	43,0	56,4	14. 42. 10,3		B.
	$\odot$ 2 L..... (Temp. 51°)	1,9	15,8	29,8	43,7	58,0	12,0	14. 44. 25,7		B.
	(b) Mercury 1 L.....	12,7	27,2	31,6	46,2	0,9	15,3	16. 9. 30,0		B.
	(c) Venus 1 L.....	35,6	50,3	.....	20,0	.....	49,3	16. 34. 3,7	+ 0,04	B.
	$\alpha$ Herculis.....	26,6	40,7	54,2	8,3	22,4	36,0	17. 7. 50,0		B.
Nov. 6	$\alpha$ Ophiuchi.....	36,2	50,1	4,0	17,7	31,8	45,2	17. 27. 59,0		B.
	(d) Venus 1 L.....	51,1	5,6	20,3	33,0	50,0	4,7	16. 39. 19,2		B.
	$\alpha$ Herculis.....	24,4	38,3	52,1	5,9	20,4	33,9	17. 7. 47,7		B.
	$\alpha$ Ophiuchi.....	34,0	47,9	1,8	15,5	29,6	43,0	17. 27. 56,9		B.
	(c) Arcturus.....	22,0	36,1	50,6	5,0	.....	33,7	14. 8. 48,0	+ 2,43	B.
Nov. 7	Mercury 1 L.....	34,9	49,5	4,0	18,5	33,2	47,9	16. 20. 2,7		B.
	$\beta$ Aquarii.....	11,7	25,0	38,4	52,0	6,1	19,0	21. 23. 32,7		B.
	$\alpha$ Aquarii.....	37,4	50,9	4,7	18,0	31,9	45,2	21. 57. 58,4		B.
	$\beta$ Cassiopeiae.....	8,7	34,1	59,7	25,1	51,0	16,3	0. 1. 42,0		B.
	(c) 10 Ceti.....	29,5	43,0	56,4	9,9	23,5	37,2	0. 18. 50,9		B.
	$\delta$ Piscium.....	27,0	41,0	54,3	8,1	22,0	34,9	0. 40. 49,0		B.
	(f) 36 Andromedæ.....	25,9	40,2	54,9	9,2	24,1	38,4	0. 46. 53,1		B.
	$\epsilon$ Piscium.....	42,9	56,2	10,1	23,4	37,1	50,3	0. 55. 4,0		B.
	$\delta$ 1 L.....	40,3	54,7	8,9	23,0	37,1	51,2	1. 9. 5,1		B.
	* N.P.D. 33°. 28'.....	52,3	17,0	41,2	5,9	30,4	54,2	1. 18. 18,9		B.
	$\eta$ Piscium.....	58,8	13,0	26,9	40,8	55,2	8,5	1. 23. 22,2		B.
	* N.P.D. 59°. 40'.....	7,1	22,5	38,3	54,1	9,8	25,2	1. 33. 40,9		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

(a) Unsteady, hazy, and very unsatisfactory.  
 (b) Wind too loud for hearing the clock.  
 (c) Very cloudy.

(d) Very cloudy: wind noisy.  
 (e) Cloudy.  
 (f) Unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
h m s	s	"	s	s	s	s	s	h m s	s	
20.30.50.81		- 0.36	50.81			2.20	6.76	20.30.50.45	- 3.45	$\nu$ Capricorni.
21. 1. 6.62			6.62					21. 1. 15.30		1 L.
21.23. 2.70			2.72	11.41	8.69			21.23.11.44	- 3.47	$\beta$ Aquarii.
21.31. 8.07			8.08					21.31.16.81	- 3.72	$\gamma$ Capricorni.
21.38. 7.12			7.13					21.38.15.87	- 3.74	$\delta$ Capricorni.
21.57.28.57			28.60	37.46	8.86			21.57.37.37	- 3.50	$\alpha$ Aquarii.
23.12. 2.27			2.29					23.12.11.18		Uranus.
0. 0.35.86			36.02				8.96	0. 0.44.98	- 4.16	$\beta$ Cassiopeiae.
0.18.20.45			20.48					0.18.29.47	- 4.13	10 Ceti.
0.39.23.53			23.68					0.39.32.70	- 4.82	$\eta$ Cassiopeiae.
0.46.19.94			20.01					0.46.29.04	- 4.22	36 Andromedae.
1.12.52.40			52.51					1.13. 1.58	- 4.81	$\xi$ Andromedae.
1.21.43.97			44.06					1.21.53.15	- 4.55	* N.P.D. 56°. 39'.
1.33. 4.31			4.39					1.33.13.49	- 4.58	* N.P.D. 59°. 40'.
1.43.53.97			54.05					1.44. 3.17	- 4.60	$\alpha$ Trianguli.
1.58. 5.40			5.47	14.65	9.18			1.58.14.61	- 4.58	$\alpha$ Arietis.
20. 9. 0.61		+ 0.14	0.63	13.58	12.93	2.05	11.13	20. 9.13.49	- 3.17	$\alpha^1$ Capricorni.
21.22.58.35			58.40	11.38	12.98			21.23.11.35	- 3.40	$\beta$ Aquarii.
21.57.24.40			24.46	37.43	12.97			21.57.37.46	- 3.47	$\alpha$ Aquarii.
22. 8.14.00			14.05					22. 8.27.07	- 3.68	$\theta$ Aquarii.
22.22. 1.48			1.52					22.22.14.56	- 3.80	$\sigma$ Aquarii.
22.37.35.96			36.01					22.37.49.08		1 L.
22.52.16.29			16.35					22.52.29.43	- 3.76	$\pi$ Piscium.
22.56.38.16			38.24	51.33	13.09			22.56.51.32	- 3.57	$\alpha$ Pegasi.
23. 8.43.14			43.20					23. 8.56.30	- 3.83	$\gamma$ Piscium.
23.11.50.02			50.07					23.12. 3.18		Uranus.
0. 0.31.73			31.89				13.18	0. 0.45.07	- 4.13	$\beta$ Cassiopeiae.
0.18.16.19			16.25					0.18.29.46	- 4.12	10 Ceti.
0.39.19.17			19.32					0.39.32.55	- 4.79	$\eta$ Cassiopeiae.
0.46.15.62			15.71					0.46.28.96	- 4.22	36 Andromedae.
1.12.48.23			48.34					1.13. 1.62	- 4.81	$\xi$ Andromedae.
1.21.39.76			39.86					1.21.53.16	- 4.56	* N.P.D. 56°. 39'.
1.33. 0.07			0.16					1.33.13.47	- 4.57	* N.P.D. 59°. 40'.
1.43.49.86			49.95					1.44. 3.28	- 4.62	$\alpha$ Trianguli.
1.58. 1.30			1.39	14.66	13.27			1.58.14.74	- 4.59	$\alpha$ Arietis.
14.41.28.45						2.00	13.10	14.42.50.52		$\odot$ 's center.
14.43.43.84			36.19							
16. 9.46.27			46.29					16. 9. 0.73		Mercury 1 L.
16.33.19.82			19.85					16.33.34.32		Venus 1 L.
17. 7. 8.32			8.40	22.91	14.51			17. 7.22.92	- 1.67	$\alpha$ Herculis.
17.27.17.72			17.79	32.36	14.57			17.27.32.35	- 1.78	$\alpha$ Ophiuchi.
16.38.33.13			33.16			2.14	15.20	16.38.51.84		Venus 1 L.
17. 7. 6.10			6.18	22.90	16.72			17. 7.22.90	- 1.66	$\alpha$ Herculis.
17.27.15.53			15.60	32.35	16.75			17.27.32.35	- 1.77	$\alpha$ Ophiuchi.
14. 8. 5.00			5.08	23.61	18.53	2.03	17.37	14. 8.23.64	- 1.63	Arcturus.
16.19.18.67			18.69					16.19.37.44		Mercury 1 L.
21.22.52.13			52.18	11.34	19.16			21.23.11.35	- 3.56	$\beta$ Aquarii.
21.57.18.07			18.13	37.40	19.27			21.57.37.35	- 3.44	$\alpha$ Aquarii.
0. 0.25.87			25.43				19.40	0. 0.44.83	- 4.08	$\beta$ Cassiopeiae.
0.18.10.06			10.12					0.18.29.55	- 4.12	10 Ceti.
0.40. 8.03			8.12					0.40.27.58	4.16	$\delta$ Piscium.
0.46. 9.40			9.49					0.46.28.96	- 4.21	36 Andromedae.
0.54.23.43			23.50					0.54.42.98	- 4.22	$\epsilon$ Piscium.
1. 8.22.60			22.97					1. 8.42.46		1 L.
1.17. 5.70			5.83					1.17.25.36	- 3.22	* N.P.D. 53°. 28'.
1.22.40.77			40.83					1.23. 0.37	- 4.36	$\eta$ Piscium.
1.32.53.09			54.07					1.33.13.60	- 4.59	* N.P.D. 59°. 40'.

Error of Collimation =  $0''.16$ .Level Error =  $- 1''.41$ .

Meridian Error from Nov. 4 by Polaris SP, Polaris, and Polaris SP Nov. 9 and 10.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 7	$\beta$ Arietis.....	50,8	5,2	19,3	33,7	48,2	2,2	1. 46. 16,7		B.
Nov. 8	$\beta$ Arietis.....	48,9	3,4	17,7	32,0	46,6	0,8	1. 46. 15,0		B.
	(a) $\alpha$ Arietis.....	9,6	24,2	38,8	53,0	8,1	22,3	1. 58. 37,0		B.
	<i>1</i> L.....	43,2	57,8	12,0	26,7	41,3	55,7	2. 6. 10,0		B.
	$\epsilon$ Arietis.....	4,1	18,7	33,0	47,2	2,1	16,2	2. 50. 30,3		B.
	$\alpha$ Ceti.....	57,3	11,1	24,5	38,2	52,0	5,3	2. 54. 18,6		B.
Nov. 9	(b) $\odot$ 1 L.....	38,9	53,1	7,0	21,2	35,1	49,4	14. 58. 3,1		B.
	$\odot$ 2 L.....	55,0	9,0	22,9	37,3	52,0	6,2	15. 0. 19,8		B.
	Venus 1 L.....	43,4	58,0	12,4	27,1	42,1	56,4	16. 55. 11,3		B.
	$\alpha$ Herculis.....	18,2	32,0	45,9	59,9	14,0	27,5	17. 7. 41,3		B.
	$\alpha$ Ophiuchi.....	27,9	42,0	55,5	9,3	23,3	36,9	17. 27. 50,7		B.
	$\alpha$ Pegasi.....	46,0	0,1	13,7	27,3	41,4	55,1	22. 57. 9,1		B.
	(c) * N.P.D. 26°. 21'.....	26,0	56,7	29,4	59,2	30,4	58,8	23. 55. 29,9		B.
	$\Sigma$ 2.....	50,7	0,4	9,4	18,4	29,7	38,0	0. 3. 47,3		B.
	$\eta$ Cassiopeiæ.....	54,7	19,2	43,8	8,9	34,0	58,0	0. 40. 22,7		B.
	$\xi$ Andromedæ.....	41,1	59,8	18,9	38,0	57,0	15,5	1. 13. 34,3		B.
	(c) * N.P.D. 33°. 28'.....	47,7	12,3	37,1	1,7	26,3	50,3	1. 18. 15,0		B.
	* N.P.D. 56°. 39'.....	41,1	57,2	13,2	29,1	45,6	1,8	1. 22. 17,9		B.
	$\alpha$ Trianguli.....	53,2	8,6	24,0	39,1	55,0	10,1	1. 44. 25,3		B.
	(d) $\alpha$ Arietis.....	7,1	21,6	36,3	51,0	5,9	20,1	1. 58. 34,4		B.
	<i>1</i> Trianguli.....	0,6	16,0	31,6	47,1	2,9	18,0	2. 3. 33,2		B.
	$\theta^1$ Arietis.....	11,9	26,5	40,9	55,0	9,1	23,3	2. 9. 37,9		B.
	$\nu$ Arietis.....	42,0	55,9	11,1	25,2	40,1	54,0	2. 30. 9,1		B.
	$\epsilon$ Arietis.....	2,1	16,7	31,1	45,4	59,9	14,1	2. 50. 28,2		B.
	$\alpha$ Ceti.....	55,9	9,0	22,6	36,2	49,9	3,0	2. 54. 16,3		B.
	(e) $\odot$ 1 L.....	55,3	10,9	25,5	40,3	56,0	10,9	3. 8. 25,4		B.
	$\odot$ 2 L.....	25,7	41,0	56,0	11,1	26,0	40,9	3. 10. 56,0		B.
	$\eta$ Tauri.....	56,0	10,9	25,2	40,1	55,0	9,1	3. 38. 24,1		B.
	$\Lambda^1$ Tauri.....	11,9	26,7	41,0	55,6	10,0	24,2	3. 55. 39,0		B.
	Polaris SP.....	....	45.42,2	53.55,3	2.25,6	10.49,3	19.12,2	13. 27. 35,4	- 4. 11,20	B.
Nov. 10	$\alpha$ Pegasi.....	43,8	58,1	11,7	25,8	39,9	53,2	22. 57. 7,1		B.
	(c) * N.P.D. 26°. 21'.....	26,2	25,6	27,0	56,4	28,7	57,3	23. 55. 27,8		B.
	$\Sigma$ 2.....	....	....	8,2	16,8	27,7	35,5	0. 3. 45,4	- 1. 9,51	B.
	Polaris.....	37.10,2	45.33,3	53.57,7	2.19,7	10.50,3	19. 6,2	1. 27. 29,8		B.
	$\alpha$ Arietis.....	4,9	19,4	34,0	48,8	3,9	18,1	1. 58. 32,7		B.
	<i>1</i> Trianguli.....	58,4	13,8	29,4	45,1	1,1	15,8	2. 3. 31,0		B.
	$\theta^1$ Arietis.....	10,1	24,2	38,5	53,0	7,2	21,1	2. 9. 35,7		B.
	* N.P.D. 70°. 15'.....	4,6	18,8	33,1	47,3	1,7	16,0	2. 13. 30,1		B.
	A.S.C. 268.....	17,1	30,5	44,1	57,7	11,2	24,9	2. 27. 38,3		B.
	A.S.C. 279.....	47,7	1,3	14,8	28,7	42,1	55,4	2. 32. 8,9		B.
	$\pi$ Arietis.....	19,0	33,0	47,1	1,1	15,2	29,0	2. 40. 43,1		B.
	$\epsilon$ Arietis.....	0,1	14,3	28,9	43,1	57,7	12,0	2. 50. 26,2		B.
	$\alpha$ Ceti.....	53,3	7,2	20,4	33,8	47,2	0,8	2. 54. 14,2		B.
	$\eta$ Tauri.....	54,2	9,1	23,1	38,0	53,1	7,3	3. 38. 22,2		B.
	$\Lambda^1$ Tauri.....	10,0	24,5	39,0	53,3	8,0	22,1	3. 55. 37,1		B.
	(f) $\odot$ 2 L.....	40,0	55,0	10,7	26,1	41,9	57,1	4. 18. 12,5		B.
	(g) Aldebaran.....	41,1	55,4	9,8	23,3	37,9	51,3	4. 27. 6,0		B.
	<i>1</i> Tauri.....	27,4	42,0	56,2	11,1	25,4	39,9	4. 53. 54,1		B.
	(g) $\beta$ Tauri.....	4,2	19,2	34,4	49,9	5,3	20,3	5. 16. 36,2		B.
	(h) Polaris SP.....	37.17,2	45.38,4	53.53,3	2.24,2	10.46,4	....	13. 27. 33,3	+ 2. 47,76	B.
	(h) Arcturus.....	13,7	28,0	42,0	56,3	11,1	25,1	14. 8. 39,3		B.
	(h) $\epsilon$ Bootis.....	48,7	3,9	19,1	34,2	49,6	4,7	14. 38. 19,9		B.
Nov. 11	$\odot$ 1 L.}..... (Temp 45°)	40,2	54,1	8,5	22,4	37,0	51,0	15. 6. 5,0		B.
	$\odot$ 2 L.}	56,7	10,8	25,0	39,0	53,4	7,3	15. 8. 21,4		B.
Nov. 12	(i) Venus 1 L.....	41,9	56,9	11,6	26,4	41,3	55,9	17. 11. 10,8		B.
	$\alpha$ Ophiuchi.....	21,5	35,1	48,9	2,7	16,9	30,3	17. 27. 44,1		B.
	$\alpha$ Aquilæ.....	50,5	4,1	17,7	31,2	45,2	58,5	19. 43. 12,1		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.  
Nov. 11, 2<sup>h</sup>. The Transit was levelled.

(a) Flaming. (b) Much confused by the noise of the wind. The observer was aware that the counting was in error at the end of each observation; and as it appears by the intervals that a second was lost in each case after wire V, the succeeding wires have been increased 1". (c) Extremely faint and doubtful. (d) Blazing. (e) Very uneven. Correction applied to apparent  $R$  of 1 L. for defect of illumination = - 0".04. (f) Uneven. (g) Flaring. (h) Cloudy. (i) Hazy and faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
1. 45. 33.73		+ 0.14	33.81			2.03	19.40	1. 45. 53.36	- 4.51	$\beta$ Arietis.
1. 45. 32.05			32.13			2.12	21.32	1. 45. 53.61	- 4.51	$\beta$ Arietis.
1. 57. 53.28			53.36	14.68	21.32			1. 58. 14.85	- 4.61	$\alpha$ Arietis.
2. 5. 26.67			26.74					2. 5. 48.25		$\gamma$ 1 L.
2. 49. 47.57			47.45					2. 50. 9.02	- 4.76	$\epsilon$ Arietis.
2. 53. 38.15			38.21	59.95	21.74			2. 53. 59.79	- 4.50	$\alpha$ Ceti.
14. 57. 21.11			20.32			2.19	21.38	14. 58. 52.06		$\odot$ 's center.
14. 59. 37.46			27.27					16. 54. 50.19		Venus 1 L.
16. 54. 27.25			59.90	22.89	22.99			17. 7. 22.83	- 1.65	$\alpha$ Herculis.
17. 6. 59.83			9.43	32.33	22.88			17. 27. 32.42	- 1.75	$\alpha$ Ophiuchi.
17. 27. 9.38			27.60	51.28	23.68			22. 56. 51.07	- 3.52	$\alpha$ Pegasi.
22. 56. 27.53			58.80					23. 54. 22.33	- 3.96	* N.P.D. 26°. 21'
23. 53. 58.63			19.44				23.57	0. 0. 43.01	- 5.07	$\Sigma$ 2.
0. 0. 19.13			8.89					0. 39. 32.52	- 4.74	$\eta$ Cassiopeiae.
0. 39. 8.76			37.91					1. 13. 1.59	- 4.81	$\xi$ Andromedae.
1. 12. 37.80			1.61					1. 17. 25.30	- 5.22	* N.P.D. 33°. 28'
1. 17. 1.48			29.50					1. 21. 53.20	- 4.56	* N.P.D. 56°. 39'
1. 21. 29.42			39.41					1. 44. 3.14	- 4.63	$\alpha$ Trianguli.
1. 43. 59.33			50.99	14.68	23.69			1. 58. 14.74	- 4.61	$\alpha$ Arietis.
1. 57. 50.91			47.14					2. 3. 10.89	- 4.76	$\gamma$ Trianguli.
2. 2. 47.06			55.01					2. 9. 18.77	- 4.62	$\delta^1$ Arietis.
2. 8. 54.94			25.42					2. 29. 49.22	- 4.72	$\nu$ Arietis.
2. 20. 25.34			45.44					2. 50. 9.27	- 4.77	$\epsilon$ Arietis.
2. 40. 45.36			36.19	59.96	23.77			2. 54. 0.02	- 4.51	$\alpha$ Ceti.
2. 53. 36.13			40.69					3. 8. 4.50		$\gamma$ 1 L.
3. 7. 40.61			11.03					3. 10. 34.89		$\gamma$ 2 L.
3. 10. 10.93			40.12					3. 38. 4.02	- 4.97	$\eta$ Tauri.
3. 37. 40.03			55.57					3. 53. 19.50	- 4.94	$\Lambda^1$ Tauri.
3. 54. 55.49	23.64		23.86	49.54	25.68			1. 2. 48.61	- 39.65	Polaris SP.
13. 2. 23.47			23.73	51.27	25.54	2.23	23.43	22. 56. 51.29	- 3.51	$\alpha$ Pegasi.
22. 56. 23.66			57.17					23. 54. 22.81	- 3.93	* N.P.D. 26°. 21'
23. 53. 57.00			17.52				25.66	0. 0. 43.18	- 5.01	$\Sigma$ 2.
0. 0. 17.21	22.95		22.74	49.44	26.70			1. 2. 48.49	- 39.55	Polaris.
1. 2. 21.03			48.91	14.69	25.78			1. 58. 14.75	- 4.62	$\alpha$ Arietis.
1. 57. 48.83			45.02					2. 3. 10.87	- 4.76	$\gamma$ Trianguli.
2. 2. 44.91			52.90					2. 9. 18.76	- 4.62	$\delta^1$ Arietis.
2. 8. 52.83			47.45					2. 13. 13.31	- 4.37	* N.P.D. 70°. 15'
2. 12. 47.57			57.75					2. 27. 23.63	- 4.51	A.S.C. 268.
2. 26. 57.69			28.48					2. 31. 54.37	- 4.51	A.S.C. 279.
2. 31. 28.42			1.14					2. 40. 27.05	- 4.69	$\nu$ Arietis.
2. 40. 1.07			43.26					2. 50. 9.18	- 4.78	$\epsilon$ Arietis.
2. 49. 43.18			33.90	59.97	26.07			2. 53. 59.83	- 4.52	$\alpha$ Ceti.
2. 53. 33.84			38.22					3. 38. 4.21	- 4.98	$\eta$ Tauri.
3. 37. 38.15			53.51					3. 55. 19.53	- 4.96	$\Lambda^1$ Tauri.
3. 54. 53.63			26.26					4. 17. 52.32		$\gamma$ 2 L.
4. 17. 26.19			23.61	49.65	26.04			4. 26. 49.68	- 4.82	Aldebaran.
4. 26. 23.54			10.93					4. 53. 37.06	- 4.96	$\gamma$ Tauri.
4. 53. 10.87			50.01	16.12	26.11			5. 16. 16.16	- 5.19	$\beta$ Tauri.
5. 15. 49.93	21.40		21.62	49.32	27.70	2.21	23.76	1. 2. 48.58	- 39.43	Polaris SP.
13. 2. 23.23			56.58	23.67	27.09			14. 8. 23.64	- 1.69	Arcturus.
14. 7. 56.50			34.38	1.47	27.09			14. 38. 1.49	- 1.48	$\epsilon$ Bootis.
14. 37. 34.30			30.88					15. 6. 58.03		$\odot$ 's center.
15. 5. 22.60			26.42			2.12	27.92	17. 10. 55.86		Venus 1 L.
15. 7. 29.09			2.85	32.32	29.47			17. 27. 32.32	- 1.74	$\alpha$ Ophiuchi.
17. 10. 26.40			31.29	1.04	29.65			19. 43. 1.05	- 2.41	$\alpha$ Aquilae.

Error of Collimation = - 0".16.

Level Error = + 1".41. From Nov. 8 = + 1".26.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observed.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 13	(a) Arcturus.....	7,1	21,1	35,6	50,1	4,9	18,8	14. 8. 33,1		B.
Nov. 14	* N.P.D. 26°. 21'. (faint)	17,3	48,2	17,5	46,8	17,9	48,9	23. 55. 19,5		B.
	(b) $\Sigma$ 2.....	58,58,4	0. 8,3	1,18,8	2,26,9	0. 3. 37,7	- 1. 9,51			B.
	$\alpha$ Arietis.....	56,1	11,2	25,4	40,1	55,0	9,3	1. 58. 23,7		B.
	$\gamma$ Trianguli.....	49,9	5,3	20,8	36,3	51,8	7,1	2. 3. 23,0		B.
	$\theta$ Arietis.....	1,4	15,6	30,0	44,0	58,7	12,9	2. 9. 27,0		B.
	$\mu$ Arietis.....	8,7	23,1	37,1	51,3	6,1	20,1	2. 33. 34,0		B.
	$\pi$ Arietis.....	10,1	24,0	38,0	52,1	6,6	20,5	2. 40. 34,3		B.
	$\alpha$ Ceti.....	45,0	58,3	12,1	25,3	39,1	52,0	2. 54. 5,8		B.
Nov. 16	(c) Venus 1 L.....	9,6	24,8	39,1	54,2	9,5	24,1	17. 32. 38,9		B.
	$\alpha$ Aquilæ.....	41,9	55,3	9,1	22,9	36,8	49,9	19. 43. 3,7		B.
	$\beta$ Aquilæ.....	10,8	24,3	38,0	51,5	5,2	18,6	19. 47. 32,0		B.
	$\gamma$ 2 L.....	27,4	41,3	55,3	9,1	23,3	37,0	10. 31. 51,0		B.
	$\chi$ Leonis.....	27,9	41,5	55,0	8,7	22,4	35,9	10. 56. 49,2		B.
	(b) $p$ Leonis.....	17,0	30,5	43,9	57,3	11,0	24,2	11. 5. 37,6		B.
Nov. 19	(d) $\alpha$ Pegasi.....	24,1	38,1	52,1	5,8	20,1	34,0	22. 56. ....	+ 6,93	B.
	Polaris.....	36,49,2	45,14,7	53,37,3	2. 1,2	10,32,6	18,41,4	1. 27. 9,7		B.
	$\alpha$ Arietis.....	45,4	0,1	14,8	29,1	44,2	58,2	1. 58. 13,1		B.
	(e) $\gamma$ 2 L.....	5,4	19,2	33,2	47,1	1,8	15,3	12. 54. 29,0		B.
	Polaris SP.....	45,15,6	...	2. 1,8	10,26,3	18,48,5	13. 27. 11,7	- 6. 43,77		B.
	(d) Spica.....	21,0	34,7	48,4	2,0	15,9	29,7	13. 16. 43,0		B.
	(f) Arcturus.....	54,0	8,8	22,9	37,2	51,9	6,0	14. 8. 20,2		B.
	(f) $\epsilon$ Bootis.....	29,1	44,5	59,9	15,0	30,4	45,3	14. 38. 0,7		B.
Nov. 20	(g) $\odot$ 1 L.....	43,0	57,1	11,3	26,0	40,0	15. 42. 54,2	- 7,17		B.
	$\odot$ 2 L..... (Temp. 41°)	46,9	1,2	15,5	30,0	44,5	58,6	15. 45. 12,9		B.
	$\alpha$ Ophiuchi.....	4,1	17,9	31,7	45,4	59,4	13,0	17. 27. 26,7		B.
	(h) Venus 1 L.....	44,9	59,8	14,6	29,3	44,2	59,1	17. 54. 14,0		B.
	$\alpha$ Pegasi.....	22,0	36,1	50,0	3,8	18,1	31,3	22. 56. 45,2		B.
Nov. 21	(i) $\odot$ 1 L.....	37,9	52,0	6,3	20,9	35,1	49,3	15. 47. 4,0		B.
	$\odot$ 2 L.....	56,4	11,0	25,2	39,4	54,0	8,2	15. 49. 22,9		B.
	(k) $\alpha$ Arietis.....	41,0	55,8	10,3	25,0	39,9	54,1	1. 58. 8,9		B.
Nov. 23	Arcturus.....	45,0	59,4	13,9	28,2	42,7	56,7	14. 8. 11,0		B.
	(l) $\epsilon$ Bootis.....	20,0	35,2	50,7	6,0	...	36,3	14. 37. ....	+ 12,21	B.
Nov. 24	(m) $\odot$ 1 L.....	10,7	25,1	39,6	54,0	8,8	22,9	15. 59. 37,2		B.
	$\odot$ 2 L.....	30,2	44,7	59,0	13,5	28,1	42,3	16. 1. 56,8		B.
	$\alpha$ Aquilæ.....	23,8	37,3	51,0	4,7	18,4	31,9	19. 42. 45,1		B.
	$\beta$ Aquilæ.....	52,6	6,1	19,8	33,3	47,1	0,4	19. 47. 14,0		B.
	$\alpha$ Pegasi.....	13,1	27,2	40,8	54,8	8,8	22,2	22. 56. 36,0		B.
	(n) Piazzi XXIII. 269....	18,3	...	19,2	49,3	20,2	51,6	23. 57. 21,9	- 10,20	B.
	Polaris.....	36,33,8	44,57,3	53,23,5	1,44,2	10,15,7	18,30,6	1. 26. 56,6		B.
	* N.P.D. 36°. 56'.....	...	44,1	6,2	28,8	50,9	13,7	1. 41. 36,2	- 11,20	B.
	(o) $\alpha$ Arietis.....	34,1	48,6	3,2	17,7	32,7	47,2	1. 58. 1,7		B.
	* N.P.D. 70°. 15'.....	33,7	48,1	2,2	16,7	31,1	45,2	2. 12. 59,1		B.
	(p) $\theta$ Persei.....	26,1	46,2	7,1	26,9	48,0	7,7	2. 33. 28,0		B.
	$\eta$ Persei.....	2,8	26,5	50,2	13,9	37,7	0,9	2. 39. 24,2		B.
	52 Arietis.....	27,9	42,6	57,9	12,5	27,2	41,9	2. 55. 56,7		B.
	14 Eridani.....	17,1	30,9	44,6	58,2	12,1	25,7	3. 8. 39,1		B.
	7 Tauri.....	22,7	37,1	51,9	6,9	21,7	36,0	3. 24. 51,0		B.
Nov. 25	$\odot$ 1 L.....	23,2	37,8	52,3	6,9	21,4	35,4	16. 3. 50,0		B.
	$\odot$ 2 L.....	42,9	57,4	12,0	26,4	41,0	55,3	16. 6. 9,4		B.
	$\alpha$ Ophiuchi.....	52,8	6,2	20,0	33,8	48,0	1,7	17. 27. 15,5		B.
	(q) Polaris SP.....	36,33,6	44,58,3	53,15,8	1,43,6	10. 8,4	18,24,7	13. 26. 55,5		B.
	(b) Arcturus.....	...	...	9,5	23,7	38,3	52,2	14. 8. 6,6	- 14,34	B.
	(b) $\epsilon$ Bootis.....	15,5	30,9	46,0	1,2	16,9	31,8	14. 37. 46,8		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

The Transit was levelled Nov. 20, 2<sup>b</sup>, and Nov. 26, 2<sup>b</sup>.

(a) Wind too loud for the clock. (b) Hazy and faint. (c) Loud wind; very cloudy and unsteady. The intervals are unsatisfactory. (d) Cloudy. (e) Faint. (f) Flaring. (g) Very unsteady, with much glare. Wire I of 1 L was written down 28,8, which being discordant is rejected. (h) Great motion. (i) Confused light, with much unsteadiness. (k) Noisy wind. (l) Very cloudy. (m) Unsteady, with much glare. (n) Exceedingly faint. (o) Blazing. (p) The intervals are bad. (q) Very foggy. Unsatisfactory intervals.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. M. S.	A.	"	A.	A.	A.	A.	A.	A. M. S.	A.	
14. 7. 50.10		+ 0.14	50.18	23.72	33.54	2.11	32.25	14. 8. 23.67	- 1.74	Arcturus.
23. 53. 48.01			48.18					23. 54. 22.53	- 3.83	* N.P.D. 26°. 21'
0. 0. 8.51			8.82				34.36	0. 0. 43.18	- 4.73	Σ 2.
1. 57. 40.11			40.19	14.70	34.51			1. 58. 14.72	- 4.63	α Arietis.
2. 2. 36.32			36.40					2. 3. 10.94	- 4.78	γ Trianguli.
2. 8. 44.23			44.30					2. 9. 18.85	- 4.64	β <sup>1</sup> Arietis.
2. 32. 51.48			51.55					2. 33. 26.13	- 4.74	μ Arietis.
2. 39. 52.23			52.30					2. 40. 26.89	- 4.71	* Arietis.
2. 53. 25.37			25.43	0.00	34.57			2. 54. 0.04	- 4.55	α Ceti.
17. 31. 54.31		+ 0.51	54.36			2.13	36.40	17. 32. 32.31		Venus 1 L.
19. 42. 22.80			22.86	0.99	38.13			19. 43. 1.01	- 2.36	α Aquilæ.
19. 46. 51.48			51.54	29.70	38.16			19. 47. 29.69	- 2.43	β Aquilæ.
10. 31. 9.20			9.26				38.53	10. 31. 48.72		γ 2 L.
10. 56. 8.66			8.72					10. 56. 48.22	- 2.95	χ Leonis.
11. 4. 57.36			57.42					11. 5. 36.93	- 2.82	ρ <sup>1</sup> Leonis.
22. 56. 5.96			6.03	51.16	45.13	2.22	42.98	22. 56. 51.13	- 3.40	α Pegasi.
1. 2. 0.87	62.37		1.62	45.77	44.15		45.20	1. 2. 46.91	- 35.88	Polaris.
1. 57. 29.28			29.36	14.71	45.35			1. 58. 14.74	- 4.64	α Arietis.
12. 53. 47.29			47.34			2.23	45.19	12. 54. 33.73		γ 2 L.
13. 2. 1.01	59.59		0.39	45.57	45.18			1. 2. 46.79	- 35.68	Polaris SP.
13. 16. 2.10			2.15	48.72	46.57			13. 16. 48.57	- 2.28	Spica.
14. 7. 37.29			37.36	23.82	46.46			14. 8. 23.86	- 1.84	Arcturus.
14. 57. 14.99			15.07	1.59	46.52			14. 58. 1.62	- 1.60	α Bootis.
15. 42. 11.43			20.72					15. 44. 7.37		⊙'s center.
15. 44. 29.94			45.53	32.30	46.77			17. 27. 52.34	- 1.72	α Ophiuchi.
17. 26. 45.46			29.47					17. 54. 16.32		Venus 1 L.
17. 53. 29.42			3.86	51.15	47.29			22. 56. 51.18	- 3.39	α Pegasi.
22. 56. 3.79										
15. 46. 20.78			30.23			2.18	49.45	15. 48. 21.11		⊙'s center.
15. 48. 39.59			25.08	14.71	49.63			1. 58. 14.70	- 4.64	α Arietis.
1. 57. 25.00										
14. 7. 28.13		+ 1.07	28.24	23.89	55.65	2.32	54.23	14. 8. 23.83	- 1.91	Arcturus.
14. 37. 5.85			5.97	1.65	55.68			14. 38. 1.61	- 1.66	α Bootis.
15. 58. 54.04			3.87					16. 0. 59.65		⊙'s center.
16. 1. 13.31			4.71	0.92	56.21			19. 43. 0.85	- 2.29	α Aquilæ.
19. 42. 4.60			33.43	29.62	56.19			19. 47. 29.58	- 2.35	β Aquilæ.
19. 46. 33.33			54.81	51.10	56.29			22. 56. 51.23	- 3.34	α Pegasi.
22. 55. 54.70			50.03					23. 56. 46.57	- 3.59	Piazzi xxxiii. 269.
23. 55. 49.88			46.55	43.86	57.31		56.55	1. 2. 43.20	- 33.97	Polaris.
1. 1. 45.96	48.12		28.91					1. 41. 25.62	- 5.31	* N.P.D. 36°. 56'
1. 40. 28.78			18.01	14.71	56.70			1. 58. 14.74	- 4.64	α Arietis.
1. 57. 17.89			16.70					2. 13. 13.46	- 4.69	* N.P.D. 70°. 15'
2. 12. 16.59			27.27					2. 33. 24.06	- 5.78	θ Persæ.
2. 32. 27.14			13.87					2. 39. 10.67	- 6.26	η Persæ.
2. 38. 13.74			12.50					2. 56. 9.37	- 5.01	52 Arietis.
2. 55. 12.38			38.34					3. 8. 55.19	- 4.49	14 Eridani.
3. 7. 58.25			6.88					5. 25. 3.76	- 5.12	7 Tauri.
3. 24. 6.76										
16. 3. 6.72			16.62			2.29	56.52	16. 4. 14.67		⊙'s center.
16. 3. 26.34			34.11	32.30	58.19			17. 27. 32.29	- 1.72	α Ophiuchi.
17. 26. 34.09			42.15	43.20	61.05	2.32	58.81	1. 2. 42.22	- 33.31	Polaris SP.
13. 1. 42.84	40.73	+ 0.87	23.82	23.93	60.11			14. 8. 23.99	- 1.95	Arcturus.
14. 7. 23.72			1.42	1.68	60.26			14. 38. 1.64	- 1.69	α Bootis.
14. 37. 1.30										

Error of Collimation = 0".16

Level Error = 1".26. From Nov. 16 = 1".05. From Nov. 23 = 1".38.

Meridian Error from Nov. 16 by Polaris and Polaris SP Nov. 19, allowing + 1".08 for clock-rate and + 0".20 for change of R.

Meridian Error from Nov. 23 by Polaris Nov. 24 and Polaris SP Nov. 25, allowing + 3".42 for clock-rate and + 0".66 for change of R.

Meridian Errors of Nov. 23 and 26, by the two sets of three consecutive transits of Polaris Nov. 23—27.



Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 26	(a) ☉ 1 L.....	36,2	50,5	5,8	20,1	34,5	49,0	16. 8. 3,3		B.
	☉ 2 L.....	57,0	11,1	25,4	39,9	55,0	9,0	16. 10. 23,4		B.
	(b) α Herculis.....	.....	.....	8,3	22,2	36,4	50,1	17. 7. 4,0	- 13,91	B.
	(b) α Ophiuchi.....	50,6	4,1	17,9	31,6	45,7	59,4	17. 27. 13,2		B.
	(c) Venus 1 L.....	10,0	24,7	.....	.....	9,9	24,2	18. 26. 39,1	- 2,99	B.
	(d) α Aquilæ.....	19,0	32,7	46,4	59,9	14,0	27,2	19. 42. 40,7		B.
	(d) β Aquilæ.....	47,7	2,1	15,2	28,9	42,5	56,0	19. 47. 9,4		B.
	(e) * N.P.D. 26°. 21'.....	.....	.....	47,8	18,1	50,2	21,5	23. 54. 51,7	- 30,31	B.
	Polaris.....	36.30,7	44.50,5	53.15,4	1.41,4	10.12,7	18.25,5	1. 26. 52,6		B.
	* N.P.D. 36°. 56'. (faint)	17,6	39,2	2,2	24,4	46,9	9,2	1. 41. 31,6		B.
	α Arietis.....	29,5	44,1	58,7	13,2	28,1	42,0	1. 57. 57,0		B.
	* N.P.D. 70°. 15'.....	29,1	43,1	57,6	12,0	26,1	40,3	2. 12. 54,9		B.
	(f) θ Persei.....	21,7	42,0	2,0	22,2	43,0	3,1	2. 33. 24,2		B.
	η Persei.....	58,1	21,8	45,1	9,0	33,1	56,1	2. 39. 19,6		B.
	52 Arietis.....	23,7	38,0	52,9	8,1	23,1	37,2	2. 55. 52,0		B.
	14 Eridani.....	12,7	26,0	40,1	53,5	7,7	21,1	3. 8. 35,0		B.
	7 Tauri.....	18,0	32,9	47,6	2,1	17,2	31,7	3. 24. 46,7		B.
	(g) Polaris SP.....	36.32,7	44.53,6	53.17,4	1.44,6	10. 3,7	18.31,5	13. 26. 56,3		B.
	(h) ε Bootis.....	.....	.....	43,9	58,9	14,5	29,4	14. 37. 44,6	- 15,23	B.
Nov. 27	(i) ☉ 1 L.}	50,9	5,3	20,0	34,3	48,9	3,2	16. 12. 17,4		B.
	☉ 2 L.}..... (Temp. 37°)	10,9	25,4	39,9	54,2	9,1	23,2	16. 14. 37,9		B.
	(k) α Ophiuchi.....	.....	.....	16,0	29,9	43,4	57,0	17. 27. 10,8	- 13,80	B.
	(k) Venus 1 L.....	33,4	48,3	3,2	18,1	33,2	48,0	18. 32. 3,0		B.
	(k) δ 1 L.....	59,8	15,2	30,7	46,1	1,8	17,2	18. 59. 32,4		B.
	α Aquilæ.....	17,0	30,6	44,1	57,8	11,9	24,7	19. 42. 38,5		B.
	β Aquilæ.....	45,7	59,3	12,8	26,4	40,0	53,3	19. 47. 7,0		B.
	Piazzi XXIII. 269.....	11,6	42,2	13,1	43,1	14,5	44,2	23. 57. 14,9		B.
	(l) Polaris.....	36.27,7	44.52,8	53.12,4	1.37,2	10. 6,3	18.22,2	1. 26. 45,5		B.
	α Arietis.....	27,0	41,7	56,2	11,0	25,9	40,1	1. 57. 54,4		B.
	θ Persei.....	18,6	39,7	0,1	20,0	41,2	0,9	2. 33. 21,1		B.
	η Persei.....	56,1	19,4	43,2	7,2	30,9	53,9	2. 39. 17,5		B.
	52 Arietis.....	21,0	36,0	50,7	5,8	20,9	35,2	2. 55. 50,0		B.
	7 Tauri.....	15,9	30,3	45,1	0,1	15,0	29,2	3. 24. 44,1		B.
	g Pleiadum.....	35,1	50,0	4,9	19,4	34,7	49,1	3. 35. 3,8		B.
	f Pleiadum.....	56,9	11,5	26,1	40,8	55,9	10,1	3. 39. 25,0		B.
	(m) Arcturus.....	36,1	50,3	4,6	19,0	33,4	47,3	14. 8. 2,1		B.
	(m) ε Bootis.....	11,1	26,1	41,4	56,9	12,2	27,2	14. 37. 42,4		B.
Nov. 28	(m) ☉ 1 L.}	5,7	20,1	34,7	49,1	3,9	18,1	16. 16. 32,2		B.
	☉ 2 L.}..... (Temp. 37°)	25,9	40,3	55,0	9,3	24,0	38,3	16. 18. 52,9		B.
	(m) α Herculis.....	36,0	49,9	3,9	17,6	31,8	45,7	17. 7. 59,4		B.
	α Ophiuchi.....	45,9	59,3	13,1	27,0	41,0	54,6	17. 28. 8,1		B.
	(m) Venus 1 L.....	56,7	12,0	26,8	41,5	56,8	11,3	18. 58. 26,1		B.
	α Aquilæ.....	14,7	28,0	41,8	55,3	9,1	22,5	19. 43. 36,0		B.
	β Aquilæ.....	43,4	57,1	10,7	24,2	37,9	51,1	19. 48. 4,7		B.
	δ 1 L.....	23,1	38,1	53,2	8,4	24,0	38,5	19. 52. 53,6		B.
	(h) α <sup>1</sup> Capricorni.....	26,3	39,9	54,0	8,1	21,8	35,1	20. 9. 49,0		B.
	β <sup>2</sup> Capricorni.....	16,8	30,8	44,4	58,6	13,0	26,4	20. 12. 40,2		B.
	γ Capricorni.....	11,1	25,2	39,3	53,8	8,0	21,9	20. 31. 36,1		B.
	Piazzi XXIII. 269.....	9,3	39,8	10,1	40,9	12,1	42,0	23. 58. 12,7		B.
	Σ 115.....	57,9	22,7	47,7	12,8	38,1	2,7	1. 14. 27,4		B.
	* N.P.D. 33°. 28'.....	5,6	30,2	55,2	19,2	44,1	8,0	1. 18. 32,1		B.
	(n) A.S.C. 164.....	22,4	37,3	52,2	7,9	22,8	37,4	1. 22. 52,7		B.
	γ Andromedæ.....	31,1	48,8	6,7	24,2	42,2	0,0	1. 28. 17,6		B.
	* N.P.D. 36°. 56'.....	10,9	34,7	57,1	19,4	41,8	4,1	1. 42. 26,7		B.
	α Arietis..... (flaming)	24,8	39,6	54,2	8,7	23,3	37,9	1. 58. 52,2		B.
	μ Arietis.....	37,1	51,7	5,9	20,1	34,7	48,5	2. 34. 3,0		B.
	π Arietis.....	39,0	53,0	7,1	21,1	35,4	49,0	2. 41. 3,2		B.
	A.S.C. 340.....	31,9	52,2	12,7	33,1	54,2	14,0	2. 58. 34,9		B.
	9 Tauri.....	49,1	4,0	18,8	33,1	48,0	2,3	3. 28. 16,9		B.
	g Pleiadum.....	33,0	48,1	2,8	17,2	32,0	46,7	3. 36. 1,3		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.  
After the Sun Nov. 28 the clock was put forward 1<sup>m</sup>.

(a) Unsteady. First two intervals of 1 L. not good. (b) Hazy and faint. (c) Very unsteady. Wires III and IV were written down 40,6 and 54,2, and being discordant are rejected, without, however, altering the result. (d) Hazy and very faint. Wire I of the second observation should perhaps be 48,7. (e) Very faint and doubtful. (f) The last two intervals are discordant: wire VII was written down 25,2, at least 1<sup>s</sup> too much. (g) Very great motion. The second interval is large. (h) Disturbed. (i) Great quantity of stray light. (k) Very hazy and faint. (l) Steady. (m) Much motion. (n) Wire IV confused and unsatisfactory.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
16. 7. 19.91		+ 0.87	30.10			2.32	58.81	16. 9. 30.47		☉'s center.
16. 9. 40.12			22.40	22.88	60.48			17. 7. 22.86	- 1.64	$\alpha$ Herculis.
17. 6. 22.29			31.88	32.80	60.12			17. 27. 32.37	- 1.72	$\alpha$ Ophiuchi.
17. 26. 31.78			54.66					18. 26. 55.25		Venus 1 L.
18. 25. 54.39			0.09	0.90	60.81			19. 43. 0.81	- 2.27	$\alpha$ Aquilæ.
19. 41. 59.99			28.92	29.60	60.68			19. 47. 29.65	- 2.33	$\beta$ Aquilæ.
19. 46. 28.83			19.70					23. 54. 20.82	- 3.47	* N.P.D. 26°. 21'.
23. 53. 19.55			42.14	42.96	60.82		61.13	1. 2. 43.37	- 33.07	Polaris.
1. 1. 41.26	43.42		24.57					1. 41. 25.86	- 5.30	* N.P.D. 36°. 56'.
1. 40. 24.44			13.34	14.71	61.37			1. 58. 14.65	- 4.64	$\alpha$ Arietis.
1. 57. 13.23			11.97					2. 13. 13.31	- 4.69	* N.P.D. 70°. 15'.
2. 12. 11.87			22.73					2. 53. 24.10	- 5.79	$\theta$ Persei.
2. 32. 22.60			9.11					2. 39. 10.49	- 6.26	$\eta$ Persei.
2. 38. 8.97			7.97					2. 56. 9.38	- 5.03	52 Arietis.
2. 55. 7.86			53.81					3. 8. 55.24	- 4.50	14 Eridani.
3. 7. 53.73			2.42					3. 25. 3.88	- 5.14	7 Tauri.
3. 24. 2.31			41.23	42.71	61.48	2.35	61.11	1. 2. 43.61	- 32.82	Polaris SP.
13. 1. 42.83	40.77	+ 0.29	59.13	1.69	62.56			14. 38. 1.67	- 1.70	$\epsilon$ Bootis.
14. 36. 59.03			44.37					16. 13. 47.07		☉'s center.
16. 11. 34.29			29.69	32.31	62.62			17. 27. 32.50	- 1.73	$\alpha$ Ophiuchi.
16. 13. 54.37			18.20					18. 32. 21.12		Venus 1 L.
17. 26. 29.62			46.20					18. 59. 49.16		$\gamma$ 1 L.
18. 31. 13.17			57.87	0.89	63.02			19. 43. 0.91	- 2.26	$\alpha$ Aquilæ.
18. 58. 46.17			26.42	29.59	63.17			19. 47. 29.47	- 2.32	$\beta$ Aquilæ.
19. 41. 57.80			43.54					23. 56. 46.99	- 3.49	Piazzi xxiii. 269.
19. 46. 26.36			39.46	42.45	62.99		63.46	1. 2. 43.02	- 32.56	Polaris.
23. 55. 43.37	39.89		10.99	14.71	63.72			1. 58. 14.64	- 4.64	$\alpha$ Arietis.
1. 1. 37.73			20.35					2. 33. 24.06	- 5.79	$\theta$ Persei.
1. 57. 10.90			7.03					2. 39. 10.75	- 6.27	$\eta$ Persei.
2. 32. 20.23			5.75					2. 56. 9.50	- 5.02	52 Arietis.
2. 38. 6.89			0.04					3. 25. 3.83	- 5.14	7 Tauri.
2. 55. 5.66			19.67					3. 35. 23.48	- 5.18	$g$ Pleiadum.
3. 23. 59.95			40.99					3. 39. 44.81	- 5.19	$f$ Pleiadum.
3. 34. 19.58			19.06	23.97	64.91	2.36	63.47	14. 8. 23.92	- 1.99	Arcturus.
3. 38. 40.90			56.86	1.71	64.85			14. 38. 1.77	- 1.72	$\epsilon$ Bootis.
14. 7. 18.98			59.30					16. 18. 4.38		☉'s center.
14. 36. 56.76			17.84	22.89	5.03		3.47	17. 7. 22.99	- 1.65	$\alpha$ Herculis.
16. 15. 49.12			27.07	32.31	5.24			17. 27. 32.27	- 1.73	$\alpha$ Ophiuchi.
16. 18. 9.59			41.63					18. 37. 46.93		Venus 1 L.
17. 7. 17.76			55.41	0.89	5.48			19. 43. 0.82	- 2.26	$\alpha$ Aquilæ.
17. 27. 27.00			24.22	29.59	5.37			19. 47. 29.64	- 2.32	$\beta$ Aquilæ.
18. 37. 41.60			8.45					19. 52. 13.88		$\gamma$ 1 L.
19. 42. 55.34			7.79	13.32	5.53			20. 9. 13.25	- 2.91	$\alpha'$ Capricorni.
19. 47. 24.16			58.65					20. 12. 4.11	- 2.96	$\beta'$ Capricorni.
19. 52. 8.42			53.67					20. 30. 59.16	- 3.12	$\epsilon$ Capricorni.
20. 9. 7.74			41.15					23. 56. 46.97	- 3.47	Piazzi xxiii. 269.
20. 11. 58.60			12.90				5.83	1. 13. 18.85	- 5.01	$\Sigma$ 115.
20. 30. 55.63			19.35					1. 17. 25.31	- 5.05	* N.P.D. 33°. 28'.
23. 56. 40.98			7.56					1. 22. 13.53	- 4.33	A.S.C. 164.
1. 13. 12.75			24.49					1. 27. 30.46	- 4.68	$\nu$ Andromedæ.
1. 17. 10.20			19.38					1. 41. 25.38	- 5.29	* N.P.D. 36°. 56'.
1. 22. 7.53			8.76	14.71	5.95			1. 58. 14.78	- 4.64	$\alpha$ Arietis.
1. 27. 24.37			20.22					2. 33. 26.30	- 4.79	$\mu$ Arietis.
1. 41. 19.25			21.19					2. 40. 27.28	- 4.78	$\nu$ Arietis.
1. 58. 8.67			33.41					2. 57. 39.53	- 6.03	A.S.C. 340.
2. 33. 20.14			33.26					3. 27. 39.43	- 5.15	9 Tauri.
2. 40. 21.11			17.59					3. 35. 23.57	- 5.20	$g$ Pleiadum.
2. 57. 33.29										
3. 87. 33.17										
3. 35. 17.30										

Error of Collimation = - 0".16.

Level Error = + 1".36.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Dec. 1	(a) ☉ 1 L.....	54,1	9,0	23,1	37,7	52,0	6,9	16.30.21,3	+ 29,10	B.
	☉ 2 L.....	15,0	29,3	43,8	.....	.....	.....	16.31. ....		B.
	(b) α Arietis.....	17,7	32,2	47,0	1,7	16,3	30,7	1.58.45,1		B.
	Arcturus.....	26,7	41,0	55,3	9,8	24,1	38,3	14.8.52,7		B.
	ε Bootis.....	1,8	16,9	32,1	47,3	2,7	17,8	14.38.32,8		B.
Dec. 2	☉ 1 L.....	11,3	25,7	40,4	54,9	9,9	24,1	16.34.38,7	- 3.46,55	B.
	☉ 2 L.....	32,2	47,0	1,5	16,0	30,8	45,0	16.36.59,7		B.
	α Herculis..... (hazy)	26,8	40,7	54,3	8,3	22,6	36,0	17.7.49,9		B.
	α Ophiuchi.....	36,3	50,0	4,0	17,7	32,2	45,1	17.27.59,0		B.
	(c) δ Ursæ Minoris.....	.....	.....	19.11,6	22.57,6	26.47,3	30.29,2	18.34.16,5		B.
	κ Aquarii.....	35,9	49,2	3,1	16,3	30,1	43,2	22.29.57,1		B.
	λ Aquarii.....	23,4	37,1	50,7	4,1	18,0	31,3	22.44.45,1		B.
	α Pegasi.....	54,1	8,1	22,1	35,7	49,9	3,6	22.57.17,5		B.
	♃ 1 L.....	18,9	32,3	46,1	59,8	14,0	27,4	23.4.41,3		B.
	Uranus.....	29,9	43,5	57,0	10,4	24,2	37,5	23.11.51,0		B.
	κ <sup>1</sup> Piscium.....	51,7	5,1	18,8	32,4	46,0	59,1	23.19.12,8		B.
	δ Ursæ Minoris SP....	11.37,7	15.22,7	19.7,2	22.56,6	26.44,8	30.29,3	6.34.14,5		B.
	Arcturus.....	24,6	38,8	53,0	7,4	22,1	36,0	14.8.50,5		B.
	ε Bootis.....	59,3	14,8	29,9	45,2	0,7	15,5	14.38.30,6		B.
Dec. 3	☉ 1 L.....	29,1	43,4	58,2	13,0	27,7	42,0	16.38.56,4	+ 16,81	B.
	☉ 2 L.....	50,5	5,0	19,6	34,3	49,1	3,4	16.41.17,9		B.
	(d) α Herculis.....	24,8	38,2	52,2	6,0	20,0	33,7	17.7.47,6		B.
	(d) α Ophiuchi.....	33,9	47,3	1,1	15,0	29,4	42,9	17.27.56,9		B.
	δ Ursæ Minoris.....	11.35,2	15.21,4	19.8,2	22.54,3	26.44,6	30.25,8	18.34.14,3		B.
	(e) Venus 1 L.....	46,0	1,0	15,7	30,8	46,0	0,3	19.5.15,0		B.
	α Pegasi.....	52,0	5,7	20,0	33,5	48,2	1,1	22.57.15,2		B.
	Uranus.....	29,1	42,8	56,1	10,0	23,7	37,2	23.11.50,3		B.
	κ <sup>1</sup> Piscium.....	49,6	3,2	16,7	30,2	43,7	57,1	23.19.10,4		B.
	λ Piscium.....	59,0	12,3	25,8	39,2	53,1	6,2	23.34.19,7		B.
	♃ 1 L.....	45,2	59,0	13,0	26,7	41,0	54,3	23.52.8,0		B.
	B Piscium.....	50,2	3,7	17,1	30,9	44,9	58,2	0.7.12,1		B.
	Σ 115.....	46,2	10,9	36,1	0,9	26,5	50,9	1.14.15,7		B.
	υ Andromedæ.....	20,0	37,1	55,0	12,7	30,8	48,1	1.28.5,9		B.
	ε Cassiopeiæ.....	16,9	46,4	16,0	45,3	15,8	44,7	1.44.14,2		B.
	α Arietis.....	13,2	27,9	42,5	57,0	12,0	26,1	1.58.41,0		B.
	Arcturus.....	22,2	36,7	51,1	5,2	20,1	34,1	14.8.48,2		B.
	ε Bootis.....	57,1	12,5	27,9	43,2	58,3	13,4	14.38.28,6		B.
Dec. 4	☉ 1 L.....	47,9	2,4	16,8	31,5	46,3	0,7	16.43.15,3	+ 16,81	B.
	☉ 2 L.....	9,1	23,7	38,1	52,9	7,9	22,0	16.45.36,6		B.
	(c) α Herculis.....	22,8	36,4	50,3	4,1	18,1	31,8	17.7.45,8		B.
	(f) α Ophiuchi.....	32,0	45,7	59,4	13,3	27,0	40,7	17.27.54,5		B.
	♃ 1 L.....	27,2	41,1	55,3	9,2	23,1	37,0	0.41.51,0		B.
	(g) ε Piscium.....	42,1	55,8	9,1	22,9	36,7	50,2	0.55.3,5		B.
	η Piscium.....	59,0	12,3	26,3	40,3	54,3	8,0	1.23.21,9		B.
	ε Cassiopeiæ.....	14,6	44,1	13,6	43,0	13,2	41,9	1.44.11,7		B.
	(g) α Arietis.....	11,1	25,5	40,2	54,6	9,7	24,0	1.58.38,3		B.
	(g) α Ceti.....	59,2	12,9	26,6	.....	53,9	.....	2.53. ....		B.
Dec. 6	α Arietis.....	6,2	20,9	35,2	50,0	5,1	18,9	1.58.33,8	+ 16,81	B.
	θ <sup>1</sup> Arietis.....	11,5	25,6	40,0	54,1	8,7	22,6	2.9.36,9		B.
	(h) ψ Arietis.....	0,2	14,3	28,6	42,3	56,6	10,4	2.22.25,3		B.
	♃ 1 L.....	31,4	46,2	1,1	16,0	30,8	45,2	2.34.0,1		B.
	(i) α Ceti.....	55,1	8,2	22,1	35,6	49,2	2,3	2.54.15,7		B.
	δ Arietis.....	27,1	41,2	55,4	9,8	24,1	38,0	3.2.52,2		B.
	γ Arietis.....	48,1	3,1	17,7	32,5	47,4	1,9	3.15.16,8		B.
Dec. 8	(k) ε Bootis.....	45,7	1,3	16,4	31,3	46,9	1,9	14.38.17,1	+ 16,81	B.
	α Corone Borealis....	40,7	55,7	10,9	26,0	41,3	56,0	15.28.11,3		B.
	(k) Mercury 2 L.....	5,4	19,5	33,7	47,8	2,1	16,1	16.5.30,2		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole GFEDCBA.  
The Transit was levelled Dec. 2, 2<sup>h</sup>, and Dec. 9, 3<sup>h</sup>.

- (a) Cloudy, faint, and unsteady.  
 (b) Cloudy. This observation is grouped with the following clock-stars.  
 (c) Very faint.  
 (d) Very hazy, faint, and unsteady.

- (e) Great vibration.  
 (f) Hazy and faint.  
 (g) Cloudy.  
 (h) Very cloudy. Bad intervals.  
 (i) Blazing.  
 (k) Much motion.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
16. 29. 37.73 16. 31. 58.47 1. 58. 1.53 14. 8. 9.70 14. 37. 47.33		+ 2.39	48.30 1.74 9.90 47.55	14.70 24.07 1.80	12.96 14.17 14.23	2.28	10.50 12.78	16. 31. 0.37 1. 58. 14.71 14. 8. 24.02 14. 38. 1.72	- 4.63 - 2.09 - 1.81	☉'s center. α Arietis. Arcturus. ε Bootis.
16. 33. 55.00 16. 36. 16.03 17. 7. 8.37 17. 27. 17.76 18. 22. 57.89 22. 29. 16.42 22. 44. 4.24 22. 56. 35.86 23. 3. 59.98 23. 11. 10.50 23. 18. 32.27 6. 22. 56.11 14. 8. 7.49 14. 37. 43.14	59.43		5.72 8.57 17.97 57.97 16.62 4.44 36.06 0.17 10.70 32.47 56.44 7.69 45.34	51.01	14.95		15.06 15.10	16. 33. 20.08 17. 7. 22.98 17. 27. 32.41 18. 23. 12.50 22. 29. 31.54 22. 44. 19.39 22. 56. 51.02 23. 4. 15.15 23. 11. 25.69 23. 18. 47.47 18. 23. 12.11 14. 8. 24.10 14. 38. 1.79	- 1.68 - 1.75 + 42.95 - 3.39 - 3.52 - 3.25	☉'s center. α Herculis. α Ophiuchi. δ Ursæ Minoris. α Aquarii. λ Aquarii. α Pegasi. J 1 L. Uranus. α <sup>1</sup> Piscium. δ Ursæ Min. SP. Arcturus. ε Bootis.
16. 38. 12.83 16. 40. 34.26 17. 7. 6.07 17. 27. 15.21 18. 22. 54.83 19. 4. 30.68 22. 56. 33.67 23. 11. 9.88 23. 18. 30.12 23. 33. 39.33 23. 51. 26.74 0. 6. 31.01 1. 13. 1.03 1. 27. 12.80 1. 42. 45.61 1. 57. 57.10 14. 8. 5.37 14. 37. 43.00	56.42		23.75 6.27 15.42 54.91 30.87 33.87 10.08 30.32 39.52 26.94 31.21 1.24 13.01 45.82 57.31 5.57 43.20	51.00	17.13		17.32 17.27	16. 39. 40.39 17. 7. 22.95 17. 27. 32.14 18. 23. 11.71 19. 4. 47.74 22. 56. 51.09 23. 11. 27.33 23. 18. 47.57 23. 33. 56.80 23. 51. 44.24 0. 6. 48.54 1. 13. 18.67 1. 27. 30.47 1. 43. 3.30 1. 58. 14.81 14. 8. 24.14 14. 38. 1.81	- 1.68 - 1.76 + 43.15 - 3.24 - 3.58 - 3.65 - 3.81 - 4.92 - 4.64 - 5.87 - 4.63 - 2.14 - 1.85	☉'s center. α Herculis. α Ophiuchi. δ Ursæ Minoris. Venus 1 L. α Pegasi. Uranus. α <sup>1</sup> Piscium. λ Piscium. J 1 L. R Piscium. Σ 113. ν Andromedæ. ε Cassiopeiæ. α Arietis. Arcturus. ε Bootis.
16. 42. 31.55 16. 44. 52.90 17. 7. 4.19 17. 27. 13.23 0. 41. 9.13 0. 54. 22.90 1. 22. 40.30 1. 42. 43.16 1. 57. 54.77 2. 53. 39.96			42.43 4.39 13.44 9.39 23.10 40.50 43.37 54.98 40.16	14.69 0.09	19.71 19.93		19.47	16. 44. 1.23 17. 7. 23.23 17. 27. 32.31 0. 41. 28.92 0. 54. 42.65 1. 23. 0.10 1. 43. 3.00 1. 58. 14.63 2. 53. 59.90	- 1.69 - 1.76 - 4.10 - 4.29 - 5.85 - 4.62 - 4.64	☉'s center. α Herculis. α Ophiuchi. J 1 L. ε Piscium. η Piscium. ε Cassiopeiæ. α Arietis. α Ceti.
1. 57. 50.01 2. 8. 54.20 2. 21. 42.33 2. 33. 15.83 2. 53. 35.46 3. 2. 9.69 3. 14. 32.50			50.23 54.41 42.73 16.05 35.67 9.90 32.72	14.69 0.09	24.46 24.42	2.31	24.21	1. 58. 14.63 2. 9. 18.83 2. 22. 7.18 2. 33. 40.51 2. 54. 0.16 3. 2. 34.40 3. 14. 57.24	- 4.62 - 4.64 - 4.68 - 4.64 - 4.96 - 5.15	α Arietis. β <sup>1</sup> Arietis. ψ Arietis. J 1 L. α Ceti. δ Arietis. γ Arietis.
14. 37. 31.31 15. 27. 25.99 16. 4. 47.83			31.73 26.21 44.03	1.05 56.39	30.22 30.38	2.27	28.78	14. 38. 1.89 15. 27. 56.45 16. 5. 18.33	- 1.96 - 1.66	ε Bootis. α Coronæ Bor. Mercury 2 L.

Error of Collimation = - 0".16.

Level Error from Dec. 1 = + 2".00. From Dec. 6 = + 2".25.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Dec. 9	⊙ 1 L.....	28,2	43,1	58,0	12,7	27,2	41,7	17. 4. 56,2		B.
	⊙ 2 L.....	50,3	5,2	19,9	34,4	49,6	3,9	17. 7. 18,5		B.
	(a) Venus 1 L.....	32,0	46,5	1,3	16,0	31,1	45,5	19. 37. 0,2		B.
	α Aquilæ.....	49,0	2,7	16,1	29,8	43,9	57,1	19. 43. 10,8		B.
	β Aquilæ.....	18,0	31,7	45,3	58,9	12,4	25,7	19. 47. 39,3		B.
	(b) Aldebaran.....	36,4	50,2	4,3	18,2	32,9	46,3	4. 27. 0,2		B.
	β Tauri.....	59,1	14,4	29,7	45,2	0,7	15,8	5. 16. 31,0		B.
	γ Tauri.....	5,0	19,9	35,1	50,2	5,7	20,8	5. 43. 36,0		B.
	(c) δ 2 L.....	22,9	38,0	53,6	9,3	25,2	40,5	6. 2. 56,2		B.
	ε Geminorum.....	54,2	8,8	24,0	39,2	54,2	8,7	6. 34. 23,3		B.
Dec. 13	ζ Geminorum.....	27,1	41,6	56,0	10,3	24,9	39,1	6. 54. 53,2		B.
	α Coronæ Borealis....	29,2	44,4	59,7	14,9	30,1	45,1	15. 28. 0,1		B.
Dec. 14	(a) Mercury 2 L.....	22,7	36,7	50,9	5,0	19,3	33,2	16. 4. 47,4		B.
	Σ 115.....	21,1	45,9	10,8	35,9	1,2	25,7	1. 13. 50,7		B.
	ν Andromedæ.....	54,2	12,1	30,1	47,4	5,9	23,2	1. 27. 40,9		B.
	(d) ε Cassiopeiæ.....	51,9	21,1	50,8	20,4	50,7	19,2	1. 43. 49,1		B.
	(d) α Arietis.....	47,9	2,9	16,9	31,9	46,7	1,1	1. 58. 15,7		B.
	(d) α Coronæ Borealis....	27,1	42,2	57,5	12,9	28,0	42,8	15. 27. 57,9		B.
	(c) Mercury 2 L.....	3,7	17,9	32,3	46,3	0,7	14,5	16. 6. 28,9		B.
	α Herculis.....	57,3	11,1	25,0	38,8	53,0	6,9	17. 7. 20,7		B.
	(d) α Ophiuchi.....	6,9	20,8	34,3	48,1	2,6	16,0	17. 27. 29,7		B.
Dec. 15	⊙ 1 L.....	43,9	58,4	13,1	27,7	42,8	57,1	17. 31. 12,0		B.
	⊙ 2 L.....	6,4	21,0	35,9	50,5	5,7	20,0	17. 33. 34,6		B.
	δ Ursæ Minoris.....	11. 7,8	14.53,7	18.40,5	22.25,6	26.16,4	29.59,7	18. 33. 45,3		B.
	(f) Venus 1 L.....	39,3	53,8	8,5	23,0	38,0	52,2	20. 8. 7,0		B.
	α Ceti.....	34,7	48,1	1,7	15,2	29,1	42,0	2. 53. 55,3		B.
	γ Tauri.....	10,8	25,0	...	54,6	9,2	23,9	3. 27. 38,0	- 2,43	B.
	g Pleiadum.....	54,1	9,1	23,9	38,3	53,3	8,1	3. 35. 22,7		B.
	f Pleiadum.....	15,9	30,6	45,0	59,8	15,0	29,0	3. 39. 43,9		B.
Dec. 17	(f) α Aquilæ.....	31,9	45,4	58,9	12,8	26,4	39,9	19. 42. 53,5		B.
	(g) Venus 1 L.....	52,1	6,9	21,3	36,0	50,9	5,1	20. 18. 19,4		B.
	(g) α Aquarii.....	8,2	21,7	35,2	48,7	2,3	15,6	21. 57. 29,0		B.
	(g) α Ophiuchi.....	1,3	15,0	28,8	42,9	56,9	10,2	17. 27. 24,0		B.
Dec. 18	(f) ⊙ 1 L.....	56,3	11,1	26,0	40,6	55,5	10,0	17. 44. 24,9		B.
	⊙ 2 L.....	19,2	34,0	48,8	3,6	18,5	33,0	17. 46. 47,6		B.
	(d) Venus 1 L.....	56,9	11,2	25,6	40,2	54,7	8,9	20. 23. 23,7		B.
Dec. 21	(d) β Tauri.....	...	49,0	4,0	19,2	35,0	50,1	5. 16. 5,2	- 7,63	B.
	α Coronæ Borealis....	12,9	28,0	42,7	58,0	13,1	28,3	15. 27. 43,7		B.
Dec. 22	(d) δ Ursæ Minoris.....	10.30,7	14.17,4	17.56,3	21.51,2	...	...	18. 33. 7,8	+ 2. 15,89	B.
	(b) α Aquilæ.....	21,7	35,0	48,3	2,1	15,9	29,2	19. 42. 43,0		B.
	(b) Rigel.....	16,4	29,9	43,2	57,2	11,0	24,2	5. 6. 38,1		B.
	(b) β Tauri.....	31,1	46,8	2,1	17,2	32,3	48,1	5. 16. 3,2		B.
	δ Ursæ Minoris SP....	11. 7,7	14.55,4	18.41,4	22.28,3	26.19,8	30. 0,6	6. 33. 46,3		B.
	δ Ophiuchi.....	20,1	33,5	46,7	0,5	13,9	27,3	16. 5. 40,8		B.
	(d) Mercury 2 L.....	...	...	27,3	41,8	56,4	10,8	16. 34. 25,3	- 14,35	B.
	(f) α Herculis.....	41,1	54,7	8,6	22,9	36,5	50,2	17. 7. 4,2		B.
Dec. 23	⊙ 1 L.....	0,1	14,9	29,2	44,0	59,0	13,7	18. 6. 28,2		B.
	⊙ 2 L.....	23,0	37,8	52,1	7,0	21,8	36,9	18. 8. 51,1		B.
	(h) δ Ursæ Minoris.....	10.28,5	14.17,2	17.57,4	21.48,2	25.33,6	29.19,4	18. 33. 6,8		B.
	(h) α Aquilæ.....	19,3	32,9	46,2	0,4	13,9	27,2	19. 42. 41,0		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

From Dec. 21. EAST. .... ABCDEFG.

Dec. 21, 3<sup>h</sup>. The Transit was levelled and then reversed, and the Error of Collimation determined.

- (a) Much motion.  
 (b) Blazing.  
 (c) Unsteady.  
 (d) Cloudy.

- (e) Very hazy and indistinct.  
 (f) Cloudy and unsteady.  
 (g) Very unsteady and hazy.  
 (h) Great motion.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1840.	NAME OF STAR or PLANET.
A. m. s.	A.	"	A.	A.	A.	A.	A.	A. m. s.	A.	
17. 4. 12.44		+ 2.39	23.69			2.27	28.78	17. 5. 54.09		☉'s center.
17. 6. 34.54			16.29					19. 36. 46.92		Venus 1 L.
19. 36. 16.09			30.13	0.83	30.70			19. 43. 0.77	- 2.20	α Aquilæ.
19. 42. 29.92			58.97	29.53	30.56			19. 47. 29.62	- 2.26	β Aquilæ.
19. 46. 58.76			18.58	50.06	31.48		31.05	4. 26. 50.05	- 5.23	Aldebaran.
4. 26. 18.36			45.35	16.73	31.38			5. 16. 16.90	- 5.80	β Tauri.
5. 15. 43.13			50.60					5. 43. 22.19	- 5.78	γ Tauri.
5. 42. 50.38			9.61					6. 2. 41.23		δ 2 L.
6. 2. 9.39			39.14					6. 34. 10.81	- 5.65	ε Geminorum.
6. 33. 38.92			10.53					6. 54. 42.23	- 5.42	ζ Geminorum.
6. 54. 10.31										
15. 27. 14.79		+ 4.52	15.08	56.69	41.61	2.06	40.27	15. 27. 56.68	- 1.76	α Coronæ Bor.
16. 4. 5.03			5.37					16. 4. 47.02		Mercury 2 L.
1. 12. 35.90			36.11				42.33	1. 13. 18.54	- 4.71	Σ 115.
1. 26. 47.69			47.96					1. 27. 30.41	- 4.54	ν Andromedæ.
1. 42. 20.45			20.87					1. 43. 3.35	- 5.64	ε Cassiopeiæ.
1. 57. 31.87			32.16	14.65	42.49			1. 58. 14.66	- 4.58	α Arietis.
15. 27. 12.63			12.91	56.71	43.80	2.02	42.36	15. 27. 56.57	- 1.78	α Coronæ Bor.
16. 5. 46.33			46.67					16. 6. 30.38		Mercury 2 L.
17. 6. 38.98			39.28	23.04	43.76			17. 7. 23.08	- 1.80	α Herculis.
17. 26. 48.35			48.66	32.43	43.77			17. 27. 32.49	- 1.85	α Ophiuchi.
17. 30. 27.86			39.57					17. 32. 23.40		☉'s center.
17. 32. 50.58			25.96	9.84	43.88			18. 23. 9.87	+ 45.50	δ Ursæ Minoris.
18. 22. 27.00	28.82		23.47					20. 8. 7.53		Venus 1 L.
20. 7. 23.11			15.48	0.08	44.60		44.38	2. 54. 0.10	- 4.63	α Ceti.
2. 53. 15.16	15.25		54.78					3. 27. 39.45	- 5.19	γ Tauri.
3. 26. 54.49			38.80					3. 35. 23.48	- 5.27	g Pleiadum.
3. 34. 38.50			0.19					3. 39. 44.88	- 5.29	f Pleiadum.
3. 38. 59.39										
19. 42. 12.68			12.99	0.82	47.83	1.83	46.31	19. 43. 0.80	- 2.19	α Aquilæ.
20. 17. 35.96			36.31					20. 18. 24.17		Venus 1 L.
21. 56. 48.67			48.99	36.95	47.96			21. 57. 36.97	- 2.99	α Aquarii.
17. 26. 42.73			43.04	32.46	49.42	1.80	48.11	17. 27. 32.46	- 1.88	α Ophiuchi.
17. 43. 40.63			52.43					17. 45. 41.87		☉'s center.
17. 46. 3.53			40.52					20. 23. 30.16		Venus 1 L.
20. 22. 40.17										
5. 15. 19.43		- 11.23	20.07	16.88	56.81	2.17	56.30	5. 16. 17.05	- 5.95	β Tauri.
15. 26. 58.10			58.69	56.89	58.20			15. 27. 56.58	- 1.96	α Coronæ Bor.
18. 21. 46.57	1.68		8.79	9.02	60.23			18. 23. 6.95	+ 46.32	δ Ursæ Minoris.
19. 42. 2.17			2.34	0.83	58.49			19. 43. 0.62	- 2.20	α Aquilæ.
5. 5. 57.14			56.98	55.91	58.93		58.67	5. 6. 56.11	- 4.77	Rigel.
5. 15. 17.26			17.88	16.89	59.01			5. 16. 17.03	- 5.96	β Tauri.
6. 22. 28.50	16.43		8.14	8.95	60.81			18. 23. 7.39	+ 46.39	δ Ursæ Min. SP.
16. 5. 0.40			0.66	0.68	60.02	2.17	58.67	16. 6. 0.78	- 2.56	δ Ophiuchi.
16. 33. 41.97			41.56					16. 34. 41.73		Mercury 2 L.
17. 6. 22.60			22.91	23.17	60.26			17. 7. 23.13	- 1.93	α Herculis.
18. 5. 44.16			55.13					18. 7. 55.46		☉'s center.
18. 8. 7.10			7.52	8.89	61.37			18. 23. 7.85	+ 46.45	δ Ursæ Minoris.
18. 21. 47.30	0.41		0.29	0.83	60.54			19. 43. 0.74	- 2.20	α Aquilæ.
19. 42. 0.12										

Error of Collimation = - 0".16. From Dec. 21 = + 1".13.

Level Error = + 2".25. From Dec. 17 = + 2".16, by levelling before the reversion of Dec. 21. The adopted Level Error after the reversion = + 12".70. For an account of the method of obtaining this value, and of the change of Level and Meridian Errors at the reversion, see the Introduction.

Meridian Error from Dec. 13 by δ Ursæ Minoris and α Ceti Dec. 13, allowing - 0".72 for clock-rate.

..... from Dec. 21 by δ Ursæ Minoris, δ Ursæ Minoris SP, and δ Ursæ Minoris Dec. 22 and 23.





APPARENT RIGHT ASCENSIONS  
OF  
POLARIS AND  $\delta$  URSÆ MINORIS,  
AND  
MEAN RIGHT ASCENSIONS OF THE STARS  
OBSERVED IN THE YEAR 1840,  
AS DEDUCED FROM EACH DAY'S OBSERVATION;  
WITH  
A CATALOGUE  
OF THE  
CONCLUDED MEAN RIGHT ASCENSIONS,  
JANUARY 1, 1840.

## POLARIS.

Day of Observation.	Apparent R.A.			Mean R.A. Jan. 1, 1840.			Day of Observation.	Apparent R.A.			Mean R.A. Jan. 1, 1840.				
1840.	h.	m.	s.	h.	m.	s.	1840.	h.	m.	s.	h.	m.	s.		
March 20	1	.	1	.	8,91	1	.	2	.	9,05	1	.	2	.	9,69
21					8,87			22		17,03					12,46
24					9,15			25		18,27					11,07
24					10,46			August 3		24,08					10,09
25					10,20			3		24,07					10,08
25					8,47			4		24,01					9,63
April 2					3,39			6		29,28					13,29
3					3,22			14		31,70					10,86
6					11,04			September 10		49,55					13,62
9					8,93			11		44,51					8,09
10					11,21			12		46,21					9,61
10					11,06			12		47,87					11,09
11					10,78			17		49,04					10,29
14					11,11			17		49,24					10,27
14					10,79			23		51,32					10,80
15					10,47			24		51,61					11,00
15					10,17			25		52,10					11,18
20					11,96			29		52,47					10,59
22					9,40			30		53,17					11,00
22					13,48			October 2		53,84					11,07
23					13,26			6		53,72					10,61
23					12,76			6		53,65					10,52
24					12,51			8		53,82					10,68
24					13,31			8		53,05					9,90
25					14,57			9		53,18					10,02
May 1					12,61			9		53,48					10,30
1					14,11			9		53,14					9,94
2					15,60			18		55,42					11,79
14					27,48			19		55,32					11,84
19					28,48			20		55,19					11,79
19					29,41			22		54,69					11,56
20					30,32			22		54,64					11,56
29					31,05			28		51,92					9,16
31					35,93			30		53,02					10,54
June 1					36,38			November 9		48,61					8,96
7					39,44			10		48,49					8,94
8					39,84			10		48,58					9,15
15					49,31			19		46,91					11,03
17					50,86			19		46,79					11,11
17					51,12			24		43,20					9,23
18					51,24			25		42,22					8,91
22					53,91			26		43,37					10,30
22					1 . 54,25			26		43,61					10,79
July 10					2 . 5,65			27		43,02					10,46
13					9,50										

## ♂ URSE MINORIS.

Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1840.	Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1840.
1840.	h. m. s.	h. m. s.	1840.	h. m. s.	h. m. s.
January 1	18 . 23 . 29,19	18 . 23 . 55,27	February 26	18 . 23 . 38,56	18 . 23 . 56,06
1	29,33	55,44	29	38,07	54,87
2	29,44	55,57			
3	27,61	53,90	March 2	39,75	55,93
6	28,31	54,61	3	39,47	55,31
7	28,33	54,62	4	39,46	54,94
8	27,21	53,48	5	39,99	55,10
10	29,03	55,19	9	23 . 41,95	55,67
10	28,88	55,01			
11	28,72	54,81	July 9	24 . 5,16	57,25
12	28,95	54,94	11	1,93	54,37
13	29,08	55,03	13	2,96	55,79
15	27,37	53,24	15	0,70	53,95
17	27,36	53,17	16	3,30	56,73
19	29,61	55,28	21	24 . 2,03	56,39
21	30,37	55,85	25	23 . 59,90	55,19
22	30,20	55,54	26	24 . 0,68	56,25
26	30,61	55,25			
29	30,60	54,83	August 11	55,16	55,33
31	30,69	54,71	17	53,37	55,45
February 3	31,94	55,49	20	52,78	56,03
7	32,59	55,21	21	52,55	55,82
10	34,41	56,20			
12	34,62	56,09	December 2	12,50	55,45
12	34,32	55,69	2	12,11	55,16
13	34,31	55,57	3	11,71	54,86
23	35,52	53,86	22	6,95	53,27
25	37,04	54,95	22	7,39	53,78
			23	7,85	54,30

$\alpha$ ANDROMEDÆ.	10 Ceti.	* N.P.D. 56°. 39'.	$\beta$ Arietis.
Jan. 10.....0. 0. 7,86	Nov. 2.....0. 18. 25,34	Nov. 2.....1. 21. 48,60	Jan. 12.....1. 45. 48,92
11 7,76	4 25,34	4 48,60	13 48,90
25 7,86	7 25,43	9 48,64	Feb. 8 48,90
29 7,71	$\eta$ Cassiopeiæ.	A.S.C. 164.	June 23 48,79
31 7,76	Nov. 2.....0. 39. 27,88	Jan. 6.....1. 22. 9,21	Nov. 7 48,85
Feb. 11 7,92	4 27,76	Nov. 28 9,20	8 49,10
13 7,87	9 27,78		
14 7,72	$\delta$ Piscium.	$\eta$ Piscium.	$\alpha$ ARIETIS.
24 7,83	Sept. 12.....0. 40. 23,45	Jan. 11.....1. 22. 56,10	Jan. 2.....1. 58. 10,09
29 7,78	13 23,10	12 55,83	3 10,07
Mar. 2 7,73	Nov. 7 23,42	June 23 55,90	6 9,88
4 7,67	36 Andromedæ.	Oct. 10 56,14	7 10,10
5 7,80	Nov. 2.....0. 46. 24,82	11 55,93	11 10,22
7 7,78	4 24,74	Nov. 7 56,01	12 10,07
8 7,85	7 24,75	Dec. 4 55,81	13 10,20
20 7,59	A.S.C. 91.	$\nu$ Andromedæ.	27 10,20
April 6 7,79	Jan. 6.....0. 48. 1,71	Nov. 28.....1. 27. 25,78	Feb. 7 10,05
10 7,86	7 1,63	Dec. 3 25,83	8 10,10
13 7,68	$\epsilon$ Piscium.	14 25,87	Mar. 6 10,06
17 7,93	Jan. 11.....0. 54. 38,85	* N.P.D. 59°. 40'.	7 10,14
24 7,66	12 38,65	Nov. 2.....1. 33. 8,91	8 9,91
26 7,90	Sept. 12 38,88	4 8,90	May 26 10,25
27 7,84	13 38,71	7 9,01	27 10,03
29 7,80	Oct. 10 38,84	* N.P.D. 36°. 56'.	28 9,99
May 3 7,61	11 38,68	Nov. 24.....1. 41. 20,31	31 10,11
Aug. 14 8,02	Nov. 7 38,76	26 20,56	June 7 9,99
Sept. 13 7,92	Dec. 4 38,55	28 20,09	22 10,06
25 7,71	$\xi$ Andromedæ.	$\chi^s$ Ceti.	23 9,87
Oct. 2 8,02	Nov. 2.....1. 12. 56,77	Jan. 3.....1. 41. 43,87	Sept. 13 9,94
6 7,83	4 56,81	6 43,79	Oct. 11 10,08
8 7,89	9 56,78	7 43,98	12 10,19
9 7,85	$\Sigma$ 115.	$\epsilon$ Cassiopeiæ.	Nov. 2 10,03
22 7,88	Nov. 28.....1. 13. 13,84	Dec. 3.....1. 42. 57,43	4 10,15
$\Sigma$ 2.	Dec. 3 13,75	4 57,15	8 10,24
Nov. 9.....0. 0. 37,94	14 13,83	14 57,71	9 10,13
10 38,17	* N.P.D. 33°. 28'.	$\alpha$ Trianguli.	10 10,13
14 38,45	Nov. 7.....1. 17. 20,14	Nov. 2.....1. 43. 58,57	14 10,09
$\beta$ Cassiopeiæ.	9 20,08	4 58,66	19 10,10
Nov. 2.....0. 0. 40,82	28 20,26	9 58,51	21 10,06
4 40,94			24 10,10
7 40,75			26 10,01
B Piscium.			27 10,00
Oct. 9.....0. 6. 44,57			28 10,14
10 44,66			Dec. 1 10,08
Dec. 3 44,73			3 10,18
$d$ Piscium.			4 10,01
Jan. 10.....0. 12. 22,07			6 10,01
11 22,29			14 10,08
			$\gamma$ Trianguli.
			Nov. 9.....2. 3. 6,13
			10 6,11
			14 6,16

$\theta^h$ Arietis.	$\tau$ Arietis.	$g$ Arietis.	ALDEBARAN continued.
Oct. 11..... <sup>h</sup> 2 . <sup>m</sup> 9 . <sup>s</sup> 14,17 12                   14,21	Nov. 10..... <sup>h</sup> 2 . <sup>m</sup> 40 . <sup>s</sup> 22,36 14                   22,18 28                   22,50	Jan. 13..... <sup>h</sup> 3 . <sup>m</sup> 14 . <sup>s</sup> 52,40 Oct. 12                   52,47 Dec. 6                   52,09	Jan. 11. <sup>h</sup> 4 . <sup>m</sup> 26 . <sup>s</sup> 44,69 13               44,62 17               44,73 21               44,69 22               44,72 28               44,92 29               44,86
Nov. 9           14,15 10           14,14 14           14,21	$\epsilon$ Arietis. Feb. 9 .....2 . 50 . 4,58 Nov. 8           4,26 9           4,50 10           4,40	7 Tauri. Nov. 24.....3 . 24 . 58,64 26           58,74 27           58,69	Feb. 3           44,75 8           44,84 9           44,85 11           44,83 12           44,79 22           44,73 25           44,81 29           44,72
Dec. 6           14,19	$\alpha$ CETI. Jan. 6.....2 . 53 . 55,54 13           55,51 17           55,39 27           55,50	9 Tauri. Nov. 28.....3 . 27 . 34,30 Dec. 15           34,26	Mar. 2           44,90 3           44,77 4           44,82 5           44,79 7           44,82 8           44,92 9           44,78 12           44,83 13           44,76 16           44,84
* N.P.D. 70°. 15'.	$\psi$ Arietis. Jan. 13 .....2 . 22 . 2,37 Oct. 11           2,35 12           2,53 Dec. 6           2,50	$g$ Pleiadum. Nov. 27.....3 . 35 . 18,30 28           18,37 Dec. 15           18,21	April 2           44,69 20           44,80 23           44,71 25           44,65 27           44,71 28           44,80 29           44,85
Nov. 10.....2 . 13 . 8,94 24           8,77 26           8,62	May 26           55,40 Oct. 12           55,38 Nov. 8           55,29 9           55,51 10           55,31 14           55,49	Dec. 15           18,21	May 1           44,75 4           44,52
A.S.C. 268. Jan. 3.....2 . 27 . 19,08 7           19,01 Nov. 10           19,12	Dec. 4           55,26 6           55,52 15           55,47	$\eta$ Tauri. Feb. 11.....3 . 37 . 59,10 Mar. 8           59,15 9           59,02 Nov. 9           59,05 10           59,23	June 7           44,92 9           44,93 16           44,74 19           44,77
$\nu$ Arietis. Feb. 9.....2 . 29 . 44,75 Nov. 9           44,50	52 Arietis. Nov. 24 ....2 . 56 . 4,32 26           4,35 27           4,48	$f$ Pleiadum. Nov. 27.....3 . 39 . 39,62 Dec. 13           39,59	July 6           44,83 7           44,81 10           44,73
A.S.C. 279. Jan. 3 .....2 . 31 . 50,07 6           49,99 Nov. 10           49,86	A.S.C. 340. Jan. 3.   2 . 57 . 33,26 7           33,13 Nov. 28           33,50	$m'$ Eridani. Jan. 7.....3 . 40 . 46,98 17           46,94	Aug. 20           44,81 Nov. 10           44,86 Dec. 9           44,82
$\theta$ Persei. Nov. 24   2 . 35 . 18,28 26           18,31 27           18,27	$\delta$ Arietis. Jan. 13   3 . 2 . 29,52 Oct. 12           29,64 Dec. 6           29,44	A <sup>1</sup> Tauri. Feb. 11   3 . 55 . 14,65 Nov. 9           14,36 10           14,57	$\tau$ Tauri. Mar. 9   4 . 32 . 38,86
$\mu$ Arietis. Jan. 7   2 . 33 . 21,46 Nov. 14           21,39 28           21,51	14 Eridani. Jan. 3   3 . 8 . 50,86 Nov. 24           50,70 26           50,74	ALDEBARAN. Jan. 1   4 . 26 . 44,71 2           45,05 6           44,84 7           44,80 10           44,71	$\iota$ Aurigæ. Feb. 11   4 . 46 . 34,99 12           35,10
$\nu$ Persei. Nov. 24.   2 . 39 . 4,41 26           4,73 27           4,48			$\rho$ Tauri. Feb. 11   4 . 53 . 32,32 12           32,25 Nov. 10           32,10

RIGEL.	$\beta$ TAURI <i>continued.</i>	* N.P.D. 69°. 7'. (A.S.C. 805.)	PROCYON <i>continued.</i>
<div> <div>h. m. s.</div> <div>Jan. 2.....5. 6. 51,24</div> <div>7. 51,06</div> <div>10. 51,31</div> <div>11. 51,36</div> <div>13. 51,28</div> <div>17. 51,16</div> <div>21. 51,18</div> <div>22. 51,36</div> <div>25. 51,19</div> <div>28. 51,06</div> <div>29. 51,19</div> <div>Feb. 3. 51,16</div> <div>6. 50,97</div> <div>11. 51,05</div> <div>12. 51,09</div> <div>Mar. 9. 51,12</div> <div>13. 50,95</div> <div>16. 51,14</div> <div>19. 51,09</div> <div>April 2. 51,12</div> <div>4. 50,99</div> <div>6. 51,02</div> <div>11. 51,02</div> <div>20. 51,07</div> <div>23. 51,37</div> <div>28. 51,12</div> <div>29. 51,05</div> <div>30. 51,21</div> <div>May 1. 51,26</div> <div>2. 51,19</div> <div>27. 51,03</div> <div>28. 51,06</div> <div>June 1. 50,97</div> <div>3. 51,02</div> <div>6. 51,08</div> <div>14. 51,10</div> <div>15. 51,20</div> <div>July 10. 51,01</div> <div>13. 51,12</div> <div>14. 50,97</div> <div>20. 51,22</div> <div>Aug. 20. 50,95</div> <div>Dec. 22. 51,34</div> <div>A.S.C. 641.</div> <div>Jan. 7.....5. 15. 12,49</div> <div>17. 12,43</div> <div>22. 12,30</div> <div>25. 12,49</div> <div>28. 12,31</div> <div>29. 12,37</div> <div><math>\beta</math> TAURI.</div> <div>Jan. 2.....5. 16. 11,08</div> <div>8. 10,86</div> <div>10. 11,00</div> <div>16. 11,15</div> <div>21. 10,93</div> <div>31. 11,03</div> </div>	<div> <div>h. m. s.</div> <div>Feb. 6.....5. 16. 11,08</div> <div>8. 11,06</div> <div>11. 11,05</div> <div>12. 11,01</div> <div>13. 11,00</div> <div>25. 10,96</div> <div>Mar. 9. 11,00</div> <div>11. 10,92</div> <div>13. 10,79</div> <div>April 2. 10,97</div> <div>4. 10,77</div> <div>6. 11,02</div> <div>11. 10,88</div> <div>20. 11,00</div> <div>23. 10,84</div> <div>28. 10,91</div> <div>30. 10,83</div> <div>May 1. 10,89</div> <div>2. 10,94</div> <div>4. 11,14</div> <div>July 10. 10,86</div> <div>20. 10,92</div> <div>Aug. 11. 11,19</div> <div>20. 10,97</div> <div>Nov. 10. 10,97</div> <div>Dec. 9. 11,10</div> <div>21. 11,10</div> <div>22. 11,07</div> <div>C Tauri.</div> <div>Feb. 12.....5. 43. 16,39</div> <div>13. 16,43</div> <div>Dec. 9. 16,41</div> <div><math>\alpha</math> ORIONIS.</div> <div>Jan. 1.....5. 46. 30,83</div> <div>8. 30,65</div> <div>Feb. 3. 30,75</div> <div>6. 30,72</div> <div>12. 30,69</div> <div>13. 30,52</div> <div>22. 30,80</div> <div>May 4. 30,96</div> <div>July 28. 30,59</div> <div>31. 30,60</div> <div>Aug. 3. 30,60</div> <div>11. 30,59</div> <div><math>\kappa</math> Aurigæ.</div> <div>Jan. 17.....6. 5. 10,93</div> <div>Feb. 12. 11,11</div> <div>13. 11,07</div> </div>	<div> <div>h. m. s.</div> <div>Jan. 17.....6. 19. 39,22</div> <div><math>\epsilon</math> Geminorum.</div> <div>Jan. 17.....6. 34. 5,18</div> <div>April 8. 5,13</div> <div>Dec. 9. 5,16</div> <div><math>\zeta</math> Geminorum.</div> <div>Dec. 9.....6. 54. 36,81</div> <div><math>\tau</math> Geminorum.</div> <div>Feb. 13.....7. 0. 57,04</div> <div>14. 57,06</div> <div><math>\delta</math> Geminorum.</div> <div>Jan. 17.....7. 10. 33,83</div> <div>Feb. 13. 33,71</div> <div>14. 33,71</div> <div><math>\iota</math> Geminorum.</div> <div>April 8.....7. 15. 46,85</div> <div>9. 46,99</div> <div>CASTOR.</div> <div>Jan. 17.....7. 24. 22,92</div> <div>19. 22,84</div> <div>21. 22,75</div> <div>31. 23,06</div> <div>Feb. 14. 22,98</div> <div>29. 22,93</div> <div>Mar. 2. 23,00</div> <div>3. 22,92</div> <div>4. 23,00</div> <div>5. 22,99</div> <div>13. 23,01</div> <div>19. 23,11</div> <div>25. 22,90</div> <div>April 2. 22,91</div> <div>8. 22,86</div> <div>9. 22,95</div> <div>May 6. 22,93</div> <div>7. 22,90</div> <div>Aug. 2. 23,01</div> <div>PROCYON.</div> <div>Jan. 17.....7. 30. 55,48</div> <div>19. 55,38</div> </div>	<div> <div>h. m. s.</div> <div>Jan. 21.....7. 30. 55,52</div> <div>22. 55,31</div> <div>27. 55,50</div> <div>31. 55,42</div> <div>Feb. 13. 55,33</div> <div>14. 55,39</div> <div>29. 55,31</div> <div>Mar. 2. 55,45</div> <div>3. 55,42</div> <div>4. 55,41</div> <div>5. 55,41</div> <div>13. 55,33</div> <div>19. 55,27</div> <div>25. 55,43</div> <div>April 2. 55,43</div> <div>8. 55,32</div> <div>9. 55,29</div> <div>29. 55,52</div> <div>May 2. 55,28</div> <div>5. 55,36</div> <div>6. 55,33</div> <div>7. 55,41</div> <div>30. 55,46</div> <div>June 3. 55,47</div> <div>6. 55,36</div> <div>11. 55,38</div> <div>16. 55,29</div> <div>20. 55,27</div> <div>23. 55,40</div> <div>July 3. 55,25</div> <div>7. 55,33</div> <div>Aug. 2. 55,24</div> <div>5. 55,19</div> <div>6. 55,32</div> <div>9. 55,30</div> <div>23. 55,23</div> <div>POLLUX.</div> <div>Jan. 17.....7. 35. 30,93</div> <div>19. 31,09</div> <div>21. 31,02</div> <div>22. 30,90</div> <div>27. 31,23</div> <div>31. 30,99</div> <div>Feb. 13. 31,17</div> <div>29. 31,27</div> <div>Mar. 2. 31,01</div> <div>3. 30,94</div> <div>4. 31,01</div> <div>5. 30,94</div> <div>13. 31,22</div> <div>19. 30,88</div> <div>25. 30,88</div> <div>April 2. 31,03</div> <div>8. 31,06</div> <div>9. 30,94</div> <div>29. 30,88</div> <div>May 2. 30,96</div> <div>5. 30,96</div> <div>7. 30,91</div> </div>

POLLUX <i>continued.</i>	$\alpha$ HYDRÆ.	REGULUS <i>continued.</i>	$\beta$ LEONIS <i>continued.</i>
May 28.....7. 35. 31,09 29           30,93 30           30,96	Jan. 19.....9. 19. 43,44	April 13.....9. 59. 50,65 16           50,69 24           50,66	June 29.....11. 40. 53,61
June 1           31,09 6           31,07 11           30,94 16           30,98 23           30,91	Feb. 7           43,52 24           43,48	May 16           50,68 29           50,55 30           50,59	Sept. 3           53,58
July 3           31,19 9           31,04 19           30,96 29           31,06 31           31,22	Mar. 20           43,54 21           43,65	June 1           50,86 6           50,71 7           50,66 8           50,72 15           50,78 17           50,71 18           50,74 24           50,62	Oct. 1           53,53 7           53,57 9           53,57 12           53,65 13           53,67 19           53,68
Aug. 3           31,09 5           31,15 6           31,09 9           31,10 23           31,14	April 3           43,63 10           43,59 11           43,53 12           43,50 13           43,54 15           43,65 16           43,79	July 7           50,60 15           50,88 20           50,72 21           50,62	$\beta$ Virginis.
$\phi$ Geminorum.	May 16           43,47 29           43,80	Sept. 7           50,55 9           50,60 11           50,63 15           50,55 28           50,52	April 13.....11. 42. 21,57 14           21,75
Mar. 13.....7. 43. 41,83	June 1           43,41 6           43,48 8           43,30 15           43,47 17           43,57 18           43,52	Oct. 1           50,56 2           50,77	$b$ Virginis.
6 Cancri.	July 3           43,44 15           43,57	$\rho$ Leonis.	April 13.....11. 51. 45,01 14           45,15
Feb. 14.....7. 53. 40,96	Sept. 7           43,56 9           43,59 20           43,56	April 11.....10. 24. 22,93 12           22,97	$q$ Virginis.
$\theta$ Cancri.	$\lambda$ Leonis.	$l$ Leonis.	April 14.....12. 25. 31,67 15           31,81
Jan. 19.....8. 22. 27,76	Jan. 19.....9. 22. 34,66	Feb. 17.....10. 40. 50,48	$\gamma^1$ Virginis.
Feb. 14           27,90	April 10           34,91 11           34,82	$\chi$ Leonis	April 14.....12. 33. 33,55 15           33,74
April 9           28,06 10           28,03	14 Leonis.	Feb. 17 ... 10. 56. 45,61	$\theta$ Virginis.
2 Cancri.	Jan. 19 .....9. 32. 36,16	April 12           45,64 13           45,58	May 13.....13. 1. 40,34
Jan. 19 ... 8. 35. 34,97	April 10           36,46 11           36,30	Nov. 16           45,27	53 Virginis.
Mar. 13           35,24	$\nu$ Leonis.	$p^1$ Leonis.	April 15.....13. 3. 33,37 16           33,37
April 9           35,31 10           35,09	Feb. 17 .....9. 49. 36,59	Nov. 16.....11. 5. 34,11	SPICA.
$\star$ N.P.D. 66°. 2'.	REGULUS.	$q$ Leonis.	April 14   13. 16. 46,41 15           46,40 16           46,30
Feb. 7   8. 48. 12,95	Feb. 7   9. 59. 50,75 17           50,73 24           50,76	April 12   11. 9. 3,42 13           3,21	May 13           46,55 14           46,37
$\alpha^1$ Cancri.	Mar. 20           50,72 21           50,82	$\beta$ Leonis.	June 7           46,39 8           46,38
Mar. 13 ... 8. 49. 43,89	April 3           50,73 6           50,74 10           50,67 11           50,84 12           50,79 13           50,72 14           50,85	Feb. 17   11. 40. 53,66	July 29           46,29
$\star$ N.P.D. 68°. 47'.		April 6           53,71	Aug. 3           46,42
Feb. 7 ... 9. 10. 34,17			Sept. 1           46,40
			Nov. 19           46,29



$\alpha$ Virginis.	$\epsilon$ Bootis continued.	$\alpha$ CORONÆ BOREALIS.	$\sigma$ Scorpil continued.
h. m. s. May 13.....13 . 41 . 11,34	h. m. s. May 14.....14 . 37 . 59,98	h. m. s. Jan. 26.....15 . 27 . 54,71	h. m. s. June 13.....16 . 11 . 28,34
$\kappa$ Virginis.	15 37 . 59,99	May 16 55,02	Aug. 6 28,41
May 13.....14 . 4 . 22,05	19 37 . 59,94	July 25 54,73	7 28,38
14 22,22	20 38 . 0,02	Aug. 1 55,07	
ARCTURUS.	June 10 37 . 59,90	6 55,05	ANTARES.
April 24.....14 . 8 . 22,02	13 38 . 0,17	7 55,07	Jan. 10.....16 . 19 . 36,52
25 22,06	29 38 . 0,07	11 54,96	May 16 36,58
May 13 21,93	30 37 . 59,98	Sept. 1 54,88	June 13 36,28
14 22,08	July 13 37 . 59,97	3 54,99	July 10 36,60
15 21,96	27 38 . 0,06	Dec. 8 54,79	13 36,35
19 22,02	29 38 . 0,17	13 54,92	Aug. 1 36,35
20 22,00	Aug. 3 38 . 0,25	14 54,79	4 36,35
June 7 22,08	4 38 . 0,20	21 54,62	5 36,36
8 22,22	5 38 . 0,17	$\kappa$ Libræ.	6 36,34
10 22,17	Sept. 10 38 . 0,03	May 16.....15 . 32 . 44,42	7 36,32
29 22,07	11 37 . 59,96	$\alpha$ SERPENTIS.	8 36,35
30 21,99	12 37 . 59,97	May 16.....15 . 36 . 23,53	Sept. 1 36,47
July 11 21,98	29 37 . 59,92	June 19 23,53	Piazzl XVI. 87.
13 22,00	Oct. 8 37 . 59,94	July 31 23,48	June 17.....16 . 20 . 16,53
27 21,96	9 38 . 0,09	Aug. 1 23,41	19 16,66
29 22,06	14 38 . 0,07	4 23,50	24 16,32
Aug. 5 22,04	30 38 . 0,00	6 23,52	$i$ Scorpil.
14 22,00	Nov. 10 38 . 0,01	7 23,49	May 20.....16 . 20 . 29,64
Sept. 10 21,85	19 38 . 0,02	11 23,44	$\tau$ Scorpil.
29 21,89	25 37 . 59,95	17 23,50	July 10.....16 . 25 . 56,11
Oct. 6 21,84	26 37 . 59,97	Sept. 3 23,52	11 56,01
8 21,86	27 38 . 0,05	$\pi$ Scorpil.	$l$ Ophiuchi.
9 21,85	Dec. 1 37 . 59,91	May 16.....15 . 49 . 11,04	Aug. 8.....16 . 37 . 22,19
12 22,06	2 37 . 59,96	$\delta$ OPHIUCHI.	21 Ophiuchi.
13 21,99	3 37 . 59,96	May 20.....16 . 5 . 58,07	Aug. 8.....16 . 43 . 18,33
14 21,93	8 37 . 59,93	June 17 58,22	11 18,23
20 21,99	$\alpha^s$ LIBRÆ.	19 58,12	30 Ophiuchi.
29 22,00	April 17.....14 42 . 2,04	July 31 58,27	Aug. 8.....16 . 52 . 37,68
Nov. 6 22,01	May 13 2,30	Aug. 1 58,22	11 37,61
10 21,95	June 10 2,13	6 58,34	$\Lambda$ Ophiuchi (preceding).
13 21,93	13 2,40	7 58,29	June 14.....17 . 5 . 31,02
19 22,02	July 27 2,34	8 58,28	Aug. 7 30,84
23 21,92	29 2,29	11 58,17	8 30,66
25 22,04	Aug. 4 2,27	17 58,15	
27 21,93	5 2,27	31 57,99	
Dec. 1 21,93	Sept. 1 2,42	Dec. 22 58,22	
2 21,99	$\beta$ Ursæ Minoris.	$\sigma$ Scorpil.	
3 22,00	July 29.....14 . 51 . 14,81	May 16.....16 . 11 . 28,32	
$\Lambda$ Virginis.	20 Libræ.		
April 17.....14 . 10 . 27,72	Jan. 26.....14 . 54 . 42,91		
$\epsilon$ BOOTIS.	$\delta$ Libræ.		
Jan. 26... ..14 . 37 . 59,96	Jan. 26.....15 . 3 . 6,66		
April 17 38 . 0,11			
May 13 37 . 59,93			

$\alpha$ HERCULIS.	$\theta$ Ophiuchi.	$\alpha$ OPHIUCHI continued.	* N.P.D. 71°. 50'. continued.
Jan. 1.....17. 7. 21,12 5 21,30 6 21,28 7 21,35 10 21,22 12 21,18 15 21,19 29 21,34	June 13.....17. 12. 11,26 14 11,25 Aug. 7 11,25 8 11,20	Oct. 28.....17. 27. 30,64 30 30,59 Nov. 2 30,58 5 30,57 6 30,58 9 30,67 12 30,58 20 30,62 25 30,57 26 30,65 27 30,77 28 30,54	Aug. 13.....18. 20. 21,06 27 21,18 31 21,18
June 15 21,18 20 21,26 24 21,51	Piazzì XVII. 64. Aug. 5.....17. 12. 32,36 11 32,40	Dec. 2 30,66 3 30,38 4 30,55 14 30,64 17 30,58	* N.P.D. 70°. 13'. Aug. 3.....18. 25. 1,01 4 1,01 5 0,97 6 0,87 7 1,08 27 1,07 29 1,14 31 1,11
July 22 21,13 25 21,45	$\rho$ Herculis. Aug. 5.....17. 18. 10,20 6 10,16 8 10,23		Sept. 1 1,05
Aug. 17 21,23 22 21,22 24 21,20	$\epsilon$ Ophiuchi. July 11.....17. 21. 39,51	$\beta$ Ophiuchi. Aug. 11.....17. 35. 34,14 22 34,31 24 34,26	A.S.C. 2154. Aug. 26.....18. 29. 20,83 27 21,09 31 21,00
Sept. 3 21,27 11 21,07 12 21,24 17 21,17 23 21,09	$\alpha$ OPHIUCHI. Jan. 1.....17. 27. 30,40 7 30,60 10 30,52 12 30,52 15 30,39 26 30,27 29 30,47	* N.P.D. 87°. 59'. Aug. 11.....17. 41. 14,87 26 14,80 27 14,82	* N.P.D. 90°. 26'. Sept. 17.....18. 29. 23,08 23 22,70
Oct. 6 21,27 7 21,16 9 21,27 13 21,26 20 21,28 28 21,36	June 15 30,65 20 30,71 29 30,57	* N.P.D. 48°. 12'. Aug. 5.....17. 46. 10,07	* N.P.D. 38°. 23'. Aug. 6.....18. 30. 9,12 7 9,29
Nov. 2 21,30 5 21,25 6 21,24 9 21,18 26 21,22 28 21,34	July 6 30,52 7 30,70 9 30,62 11 30,68 22 30,58 25 30,57	A.S.C. 2052. July 11.....17. 48. 48,71	* N.P.D. 38°. 21'. Aug. 4.....18. 30. 48,43 8 48,51
Dec. 2 21,30 3 21,27 4 21,34 14 21,28 22 21,20	Aug. 5 30,55 6 30,57 8 30,71 11 30,60 22 30,66 24 30,52 26 30,55 27 30,68 28 30,54 29 30,58 31 30,50	$\gamma$ Sagittarii. Aug. 8 17. 55. 31,71 Sept. 5 31,98	$\phi$ Sagittarii. Sept. 5 18. 35. 39,50
31 Scorpii. Aug. 6.....17. 7. 43,18	Sept. 3 30,58 9 30,54 11 30,53 12 30,51 17 30,46 23 30,47	* N.P.D. 89°. 9'. Aug. 11 18. 8. 56,97 26 56,91 27 56,96	$\delta$ Aquilæ. Aug. 11 18. 38. 12,91 26 12,85 27 12,87
39 Ophiuchi. Aug. 1.....17. 8. 15,36 5 15,57 7 15,47	Oct. 2 30,44 7 30,60 9 30,43 12 30,44 15 30,60 20 30,53	$\nu$ Sagittarii. July 13 18. 18. 5,71 Aug. 8 5,61 9 5,59	$\iota$ Aquilæ. Aug. 22 18. 38. 41,11 24 41,13 28 41,25
A.S.C. 1974. Aug. 8.....17. 8. 21,02 11 21,05		* N.P.D. 71°. 50'. Aug. 7 18. 20. 21,07 8 21,19	* N.P.D. 68°. 11'. Aug. 1 18. 38. 48,52 3 48,54 4 48,46
41 Ophiuchi. Aug. 26 17. 8. 23,92 27 24,10 31 24,20 Sept. 1 24,04			

* N.P.D. 68°. 11'. continued.	<i>h</i> <sup>o</sup> Sagittarii.	<i>α</i> AQUILÆ continued.	Σ 2652.
Aug. 5.....18. 38. 48,59 6           48,48 7           48,51 8           48,54 13          48,52	July 13.....19. 26. 57,66 14           57,61	Nov. 24....19. 24. 58,56 26           58,54 27           58,65 28           58,56  Dec. 9           58,57 17           58,61 22           58,42 23           58,54	Aug. 27.....20. 6. 24,55 28           24,40  Sept. 1           24,16 2           24,22
<i>ε</i> Lyræ.	Aug. 22.....19. 29. 18,05 24           17,96 26           17,98 27           17,96		3 Capricorni.
Aug. 29.....18. 39. 2,35 31           2,54  Sept. 1           2,25	<i>α</i> AQUILÆ.	<i>β</i> AQUILÆ.	July 31.....20. 7. 31,09  Aug. 22           31,08 24           31,24
5 Lyræ.	Jan. 2.....19. 42. 58,45 6           58,66 7           58,66 11          58,49 13          58,59	Mar. 1.....19. 47. 27,14 3           27,16 5           27,29 6           27,19	<i>α</i> <sup>o</sup> CAPRICORNI.
Sept. 11.....18. 39. 4,93 12           4,84 17           4,71	Feb. 10           58,46 13           58,56 23           58,60 26           58,65 28           58,49	June 14           27,19 29           27,23	July 15.....20. 9. 10,26 16           10,12 27           10,33 31           10,32
<i>σ</i> Sagittarii.	Mar. 1           58,44 3           58,63 4           58,50 5           58,61 6           58,63	July 6           27,29 8           27,21 9           27,15 10           27,17 13           27,42 14           27,25 15           27,22 16           27,39 31           27,23	Aug. 3           10,24 4           10,45 5           10,42 7           10,34 8           10,37 9           10,35 13           10,39 21           10,46 22           10,41 24           10,40 26           10,28
O Herculis.	June 14           58,72 29           58,59	Aug. 1           27,19 3           27,23 4           27,33 5           27,31 6           27,16 7           27,26 8           27,19 9           27,33 11           27,20 21           27,25 22           27,25 24           27,31 26           27,36 27           27,15 28           27,24 31           27,28	Sept. 5           10,38 8           10,57 10           10,49
Aug. 6.....18. 47. 59,70 22           59,74 24           59,80	July 6           58,67 8           58,70 9           58,61 10           58,65 13           58,68 14           58,64 16           58,71 30           58,54 31           58,65	Sept. 1           27,35 2           27,34 5           27,29 9           27,27 10           27,49	Oct. 6           10,39 28           10,29
* N.P.D. 92°. 0'.	Aug. 1           58,57 3           58,62 4           58,58 5           58,56 6           58,51 7           58,54 8           58,66 11           58,51 21           58,81 22           58,63 24           58,67 26           58,69 27           58,65 28           58,70 31           58,77	Oct. 4           27,27 28           27,24	Nov. 2           10,42 4           10,32 28           10,34
Aug. 11.....18. 48. 3,96 26           3,86 27           4,17	Aug. 1           58,57 3           58,62 4           58,58 5           58,56 6           58,51 7           58,54 8           58,66 11           58,51 21           58,81 22           58,63 24           58,67 26           58,69 27           58,65 28           58,70 31           58,77	Nov. 16           27,26 24           27,23 26           27,32 27           27,15 28           27,32	<i>β</i> <sup>o</sup> Capricorni.
<i>τ</i> Sagittarii.	Sept. 1           58,64 2           58,56 5           58,64 9           58,67 10           58,52	Dec. 9           27,36	Aug. 11.....20. 12. 0,84 Nov. 28           1,15
Aug. 9.....18. 56. 56,57	Oct. 5           58,63 28           58,76	<i>c</i> Sagittarii.	<i>π</i> Capricorni.
<i>f</i> Aquilæ.	Nov. 12           58,64 16           58,65	Aug. 11.....19. 52. 48,59	July 15.....20. 18. 9,21 Sept. 8           9,33
Aug. 22.....19. 12. 0,54 24           0,37 26           0,34 27           0,29			<i>θ</i> Cephei.
Piazzì XIX. 85.			Aug. 4.....20. 26. 53,67 5           53,86 6           53,73
Aug. 11.....19. 14. 8,55 28           8,72			<i>ν</i> Capricorni.
<i>χ</i> <sup>1</sup> Sagittarii.			Nov. 2.....20. 30. 56,00 28           56,04
July 13.....19. 15. 32,06 14           31,80  Aug. 9           31,75			

Piazzi XX. 429.	$\epsilon$ Capricorni.	$\gamma$ Capricorni.	$\zeta$ Aquarii.
Sept. 11..... <sup>h</sup> 20. <sup>m</sup> 53. <sup>s</sup> 22,65 12.....22,95 15.....22,82	July 16..... <sup>h</sup> 21. <sup>m</sup> 6. <sup>s</sup> 52,83 Oct. 6.....53,01	Sept. 8..... <sup>h</sup> 21. <sup>m</sup> 31. <sup>s</sup> 13,02 Nov. 2.....13,09	Sept. 11..... <sup>h</sup> 22. <sup>m</sup> 20. <sup>s</sup> 35,67 12.....35,70 17.....35,76 19.....35,64 23.....35,72
$\eta$ Capricorni.	* N.P.D. 76°. 52'.	$\delta$ Capricorni.	$\sigma$ Aquarii.
Oct. 6.....20. 55. 17,39	Aug. 5.....21. 8. 59,97 6.....59,78 14.....59,87	Aug. 27.....21. 33. 42,85 Sept. 12.....42,99 15.....42,85 25.....43,13 Oct. 2.....43,11	Nov. 4.....22. 22. 10,76
61 Cygni.	* N.P.D. 76°. 43'.	$\delta$ Capricorni.	$\eta$ Aquarii.
Aug. 26.....20. 59. 44,11 27.....44,01 31.....44,08 Sept. 1.....43,88 2.....44,11 11.....44,28 12.....44,48 13.....44,22	Aug. 4.....21. 9. 17,52 18.....17,68	Aug. 13.....21. 38. 12,11 Oct. 6.....12,21 7.....12,38 Nov. 2.....12,13	Aug. 13.....22. 27. 8,01 14.....7,98 Oct. 7.....8,18 8.....7,96
$\chi^1$ Capricorni.	$\beta$ Aquarii.	$\alpha$ Aquarii.	$\kappa$ Aquarii.
Sept. 17.....21. 0. 23,53 23.....23,58 25.....23,51 Oct. 2.....23,49	April 24.....21. 23. 8,19 25.....7,98 July 15.....8,09 16.....8,07 Aug. 4.....7,90 5.....8,01 6.....7,98 13.....7,95 14.....7,91 18.....7,98 27.....8,04 31.....8,04 Sept. 5.....7,96 8.....7,96 11.....8,04 12.....8,17 13.....8,05 17.....8,18 19.....7,95 23.....8,18 25.....8,06 Oct. 2.....8,08 7.....7,98 8.....8,02 9.....7,96 10.....8,04 28.....7,90 31.....7,85 Nov. 2.....7,97 4.....7,95 7.....7,99	Aug. 14.....21. 57. 33,79 18.....33,97 27.....33,86 Sept. 11.....34,14 12.....33,92 15.....34,03 17.....33,91 19.....33,96 23.....33,91 25.....33,97 Oct. 2.....33,95 8.....34,09 9.....33,96 10.....33,98 28.....33,92 31.....33,98 Nov. 2.....33,87 4.....33,99 7.....33,91 Dec. 17.....33,98	Dec. 2.....22. 29. 28,15
* N.P.D. 60°. 25'.	$\mu$ Pegasi.	$\nu$ Pegasi.	$\lambda$ Pegasi.
Aug. 14.....21. 1. 9,02 Oct. 7.....8,98 8.....9,05 9.....8,95	Sept. 17.....22. 38. 50,08 19.....49,94 23.....49,85	Sept. 17.....22. 42. 17,37 19.....17,28 25.....17,30	Sept. 17.....22. 38. 50,08 19.....49,94 23.....49,85
* N.P.D. 25°. 2'	$\nu$ Aquarii.	$\nu$ Aquarii.	$\nu$ Aquarii.
Feb. 7.....21. 2. 39,71 Aug. 4.....40,78 5.....40,51 6.....40,03	Aug. 13.....22. 44. 15,96 14.....15,87 Oct. 7.....16,02 8.....15,78 Dec. 2.....15,87	Aug. 13.....22. 44. 15,96 14.....15,87 Oct. 7.....16,02 8.....15,78 Dec. 2.....15,87	Aug. 13.....22. 44. 15,96 14.....15,87 Oct. 7.....16,02 8.....15,78 Dec. 2.....15,87
$\lambda$ Equulei.	$\nu$ Aquarii.	$\nu$ Aquarii.	$\nu$ Aquarii.
Aug. 27.....21. 6. 41,25 31.....41,31 Sept. 11.....41,36 18.....41,46	July 16.....21. 57. 47,27 Aug. 13.....47,32 Oct. 6.....47,47 7.....47,56	July 16.....21. 57. 47,27 Aug. 13.....47,32 Oct. 6.....47,47 7.....47,56	Nov. 4.....22. 52. 25,67
$\Sigma$ 2776	$\nu$ Capricorni.	$\theta$ Aquarii.	$\nu$ Pegasi.
Sept. 13.....21. 6. 44,82 17.....44,80 19.....44,70 23.....45,00	July 15.....21. 24. 6,75 16.....6,58	July 16.....22. 8. 23,06 Nov. 4.....23,39	Jan. 10.....22. 56. 47,57 25.....47,64 31.....47,41 Feb. 6.....47,69 27.....47,74 29.....47,72 Mar. 4.....47,76 23.....47,76

$\alpha$ PEGASI continued.	$\phi$ Aquarii.	$\kappa^1$ Piscium.	$p$ Piscium continued.
April 3..... <sup>h.</sup> 22 . <sup>m.</sup> 56 . <sup>s.</sup> 48,08	Sept. 11..... <sup>h.</sup> 23 . <sup>m.</sup> 6 . <sup>s.</sup> 2,29	Jan. 10..... <sup>h.</sup> 23 . <sup>m.</sup> 18 . <sup>s.</sup> 43,65	Oct. 2..... <sup>h.</sup> 23 . <sup>m.</sup> 50 . <sup>s.</sup> 28,96
15 47,68	12 2,23	Oct. 8 43,85	6 28,99
26 47,75	25 2,27	9 43,97	
Aug. 13 47,81	Oct. 2 2,11	Dec. 2 43,88	$\omega$ Piscium.
Sept. 19 47,79		3 43,99	Sept. 11.....23 . 51 . 6,15
23 47,83	$\psi^1$ Aquarii.		12 6,04
25 47,77		$\lambda$ Piscium.	
29 48,10	Oct. 6.....23 . 7 . 30,44	Aug. 14.....23 . 33 . 52,95	$q$ Piscium.
Oct. 2 47,76	7 30,45	Oct. 8 53,05	Oct. 6.....23 . 53 . 37,48
6 47,84	8 30,34	9 53,18	7 37,71
7 47,81		Dec. 3 53,15	8 37,46
8 47,77	$\gamma$ Piscium.		
9 47,85		$n$ Piscium.	* N.P.D. 26°. 21'.
10 47,76	Aug. 14.....23 . 8 . 52,35	Jan. 10.....23 . 39 . 42,96	Nov. 9.....23 . 54 . 18,39
22 47,67	Nov. 4 52,47	Sept. 12 43,14	10 18,88
28 47,71		25 43,03	14 18,70
29 47,72		Oct. 2 43,16	26 (17,35)
30 47,72			Piazzi XXIII. 269.
31 47,84	Sept. 12.....23 . 11 . 6,22	$p$ Piscium.	Nov. 24.....23 . 56 . 42,98
Nov. 4 47,75	25 6,11	Sept. 25.....23 . 50 . 28,92	27 43,50
9 47,55	Oct. 2 6,25		28 43,50
10 47,78			
19 47,73			
20 47,79			
24 47,91			
Dec. 2 47,77			
3 47,85			

CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS, JAN. 1, 1840;  
WITH THE ANNUAL VARIATIONS.

Name of Star.	Approximate N.P.D. Jan. 1, 1840.	Number of Observations.	Mean R.A. Jan. 1, 1840.	Annual Variation.	Name of Star.	Approximate N.P.D. Jan. 1, 1840.	Number of Observations.	Mean R.A. Jan. 1, 1840.	Annual Variation.
			A. M. S.	S.				A. M. S.	S.
$\alpha$ ANDROMEDÆ.....	61.48	33	0. 0. 7.81	+ 3,071	$\alpha$ ORIONIS.....	82.38	12	5. 46. 30.69	+ 3,243
$\Sigma$ 2.....	11.10	3	0. 0. 38.19	+ 3,087	$\star$ Aurigæ.....	60.27	3	6. 5. 11.04	+ 3,826
$\beta$ Cassiopeiæ.....	31.44	3	0. 0. 40.84	+ 3,075	$\star$ (Mag. 9) A.S.C. 805	69. 7	1	6. 19. 30.22	+ 3,577
B Piscium.....	82. 4	3	0. 6. 44.65	+ 3,074	$\epsilon$ Geminorum.....	64.43	3	6. 34. 5.16	+ 3,693
d Piscium.....	82.42	2	0. 12. 22.18	+ 3,078	$\zeta$ Geminorum.....	69.12	1	6. 54. 36.81	+ 3,562
10 Ceti.....	90.56	3	0. 18. 25.37	+ 3,067	$\eta$ Geminorum.....	59.30	2	7. 0. 57.05	+ 3,828
$\eta$ Cassiopeiæ.....	33. 2	3	0. 39. 27.81	+ 3,421	$\zeta$ Geminorum.....	67.44	3	7. 10. 33.75	+ 3,592
$\delta$ Piscium.....	83.17	3	0. 40. 23.32	+ 3,096	$\epsilon$ Geminorum.....	61.53	2	7. 15. 46.92	+ 3,744
36 Andromedæ.....	67.14	3	0. 46. 24.77	+ 3,181	CASTOR.....	57.46	19	7. 24. 22.95	+ 3,857
A.S.C. 91.....	4.36	2	0. 48. 1.67	+ 6,522	PROCYON.....	84.22	38	7. 30. 55.36	+ 3,145
$\epsilon$ Piscium.....	82.58	8	0. 54. 38.74	+ 3,108	POLLEX.....	61.36	40	7. 35. 31.03	+ 3,684
POLARIS.....	1.33	89	1. 2. 10.72	+16,501	$\phi$ Geminorum.....	62.50	1	7. 43. 41.83	+ 3,686
$\xi$ Andromedæ.....	45.19	3	1. 12. 56.79	+ 3,482	$\theta$ Cancri.....	61.46	1	7. 53. 40.96	+ 3,700
$\Sigma$ 113.....	32.42	3	1. 13. 13.81	+ 3,723	$\theta$ Cancri.....	71.22	4	8. 22. 27.94	+ 3,435
$\star$ (Mag. 8.9).....	33.28	3	1. 17. 20.16	+ 3,738	$\delta$ Cancri.....	71.16	4	8. 35. 35.15	+ 3,421
$\star$ (Mag. 8).....	56.30	3	1. 21. 48.61	+ 3,376	$\star$ (Mag. 8).....	68. 2	1	8. 48. 12.95	+ 3,469
A.S.C. 164.....	116.27	2	1. 22. 9.21	+ 2,835	$\alpha'$ Cancri.....	77.32	1	8. 49. 43.89	+ 3,287
$\eta$ Piscium.....	75.29	7	1. 22. 55.96	+ 3,191	$\star$ (Mag. 7.8).....	68.47	1	9. 10. 34.17	+ 3,418
$\nu$ Andromedæ.....	49.24	3	1. 27. 25.83	+ 3,495	$\alpha$ HYDRAE.....	97.58	25	9. 19. 43.54	+ 2,950
$\star$ (Mag. 7.8).....	59.40	3	1. 33. 8.94	+ 3,378	$\lambda$ Leonis.....	66.20	3	9. 22. 34.80	+ 3,440
$\star$ (Mag. 5).....	36.56	3	1. 41. 20.32	+ 3,830	14 Leonis.....	79.23	3	9. 32. 36.31	+ 3,219
$\chi$ Ceti.....	101.29	3	1. 41. 43.88	+ 2,952	$\gamma$ Leonis.....	76.48	1	9. 49. 36.59	+ 3,237
$\epsilon$ Cassiopeiæ.....	27. 7	3	1. 42. 57.43	+ 4,202	REGULUS.....	77.15	37	9. 59. 50.70	+ 3,222
$\alpha$ Trianguli.....	61.12	3	1. 43. 58.58	+ 3,391	$\rho$ Leonis.....	79.52	2	10. 24. 22.95	+ 3,165
$\beta$ Arietis.....	69.59	6	1. 45. 48.91	+ 3,286	$\iota$ Leonis.....	78.37	1	10. 40. 50.48	+ 3,160
$\alpha$ ARIETIS.....	67.18	40	1. 58. 10.98	+ 3,346	$\chi$ Leonis.....	81.48	4	10. 56. 45.53	+ 3,121
$\epsilon$ Trianguli.....	60.27	3	2. 3. 6.13	+ 3,456	$\rho'$ Leonis.....	89.12	1	11. 5. 34.11	+ 3,073
$\delta'$ Arietis.....	70.51	6	2. 9. 14.18	+ 3,317	$\eta$ Leonis.....	87. 7	2	11. 9. 3.32	+ 3,083
$\star$ (Mag. 7.8).....	70.15	3	2. 13. 8.78	+ 3,332	$\beta$ Leonis.....	74.32	10	11. 40. 53.62	+ 3,066
$\psi$ Arietis.....	73. 0	4	2. 22. 2.44	+ 3,306	$\beta$ Virginis.....	87.20	2	11. 42. 21.66	+ 3,073
A.S.C. 268.....	83.53	3	2. 27. 19.97	+ 3,154	$\delta$ Virginis.....	85.27	2	11. 51. 45.08	+ 3,072
$\nu$ Arietis.....	68.44	2	2. 29. 44.63	+ 3,385	$\eta$ Virginis.....	98.34	2	12. 25. 31.74	+ 3,091
A.S.C. 279.....	84.35	3	2. 31. 49.97	+ 3,147	$\gamma'$ Virginis.....	90.34	2	12. 33. 33.65	+ 3,070
$\delta$ Persei.....	41.27	3	2. 33. 18.29	+ 4,007	$\theta$ Virginis.....	94.41	1	13. 1. 40.34	+ 3,098
$\mu$ Arietis.....	70.40	3	2. 38. 21.45	+ 3,360	53 Virginis.....	105.20	2	13. 3. 33.37	+ 3,160
$\eta$ Persei.....	34.46	3	2. 39. 4.57	+ 4,301	SEICA.....	100.19	11	13. 16. 46.38	+ 3,151
$\eta$ Arietis.....	73.12	3	2. 40. 22.55	+ 3,329	$\alpha$ Virginis.....	107.20	1	13. 41. 11.34	+ 3,247
$\epsilon$ Arietis.....	69.18	4	2. 50. 4.44	+ 3,419	$\epsilon$ Virginis.....	99.32	2	14. 4. 22.14	+ 3,185
$\alpha$ CETI.....	86.33	16	2. 54. 55.41	+ 3,126	ANANTIA.....	69.59	38	14. 8. 21.99	+ 2,734
32 Arietis.....	65.22	3	2. 56. 4.38	+ 3,495	$\epsilon$ Virginis.....	102.38	1	14. 10. 27.72	+ 3,230
A.S.C. 340.....	41. 0	3	2. 57. 33.30	+ 4,144	$\epsilon$ Bootis.....	62.15	35	14. 38. 0.02	+ 2,623
$\delta$ Arietis.....	70.53	3	3. 2. 29.53	+ 3,409	$\alpha'$ LANCE.....	105.22	9	14. 42. 2.27	+ 3,309
14 Eridani.....	90.45	3	3. 8. 50.77	+ 2,900	$\beta$ URSÆ MINORIS	15.11	1	14. 51. 14.81	+ 0,276
$\gamma$ Arietis.....	65.51	3	3. 14. 52.32	+ 3,519	20 LABRÆ.....	114.39	1	14. 54. 42.91	+ 3,492
$\gamma$ Tauri.....	66. 5	3	3. 24. 58.69	+ 3,531	$\epsilon$ Labræ.....	109.11	1	15. 3. 6.66	+ 3,402
$\eta$ Tauri.....	67.19	2	3. 27. 34.28	+ 3,508	$\alpha$ LABRÆ BORÉALIS	62.45	13	15. 27. 54.89	+ 2,528
$\gamma$ Pleiadum.....	66.13	3	3. 35. 18.29	+ 3,544	$\epsilon$ Labræ.....	109. 9	1	15. 32. 44.42	+ 3,440
$\eta$ Tauri.....	66.24	3	3. 37. 59.11	+ 3,546	$\alpha$ SERPENTIS.....	83. 4	10	15. 36. 23.49	+ 2,939
$\gamma$ Pleiadum.....	66.26	2	3. 39. 39.61	+ 3,546	$\epsilon$ Scorpi.....	115.39	1	15. 49. 11.04	+ 3,609
$\mu'$ Eridani.....	114.22	2	3. 40. 46.96	+ 2,571	$\delta$ Ophiuchi.....	93.17	12	16. 5. 58.20	+ 3,138
$\alpha'$ Tauri.....	68.22	3	3. 55. 14.59	+ 3,522	$\epsilon$ Scorpi.....	115.12	4	16. 11. 28.36	+ 3,628
ALDERABAN.....	73.49	49	4. 26. 44.80	+ 3,427	ASTARIS.....	116. 4	12	16. 19. 36.41	+ 3,663
$\epsilon$ Tauri.....	67.21	1	4. 32. 38.86	+ 3,586	PARMI XVI 87.....	113.47	3	16. 20. 16.50	+ 3,627
$\epsilon$ Aurigæ.....	57. 6	2	4. 46. 35.05	+ 3,899	$\epsilon$ Scorpi.....	114.45	1	16. 20. 29.64	+ 3,628
$\epsilon$ Tauri.....	68.39	1	4. 53. 32.22	+ 3,529	$\epsilon$ Scorpi.....	117.53	2	16. 25. 56.06	+ 3,717
RIGEL.....	98.23	43	5. 6. 51.15	+ 2,878	$\iota$ Ophiuchi.....	88.41	1	16. 37. 32.19	+ 3,040
A.S.C. 641.....	114.56	6	5. 15. 12.40	+ 2,459	21 Ophiuchi.....	88.30	2	16. 47. 18.28	+ 3,055
$\beta$ Tauri.....	64.32	34	5. 16. 19.98	+ 3,782	30 Ophiuchi.....	93.59	2	16. 52. 37.65	+ 3,157
C Tauri.....	62.26	3	5. 41. 16.41	+ 3,765	$\alpha'$ Ophiuchi.....	116.22	3	17. 5. 30.84	+ 3,713

CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS, &c. *continued.*

Name of Star.	Approximate N.P.D. Jan. 1, 1840.	Number of Obser- vations.	Mean R.A. Jan. 1, 1840.	Annual Variation.	Name of Star.	Approximate N.P.D. Jan. 1, 1840.	Number of Obser- vations.	Mean R.A. Jan. 1, 1840.	Annual Variation.
	° ' "		h. m. s.	s.		° ' "		h. m. s.	s.
$\alpha$ HERCULIS.....	75.25	38	17. 7. 21.26	+ 2,732	$\beta^2$ Capricorni.....	105.17	2	20.12. 1.00	+ 3,375
$\beta^1$ Scorpii.....	116.27	1	17. 7. 43.18	+ 3,716	$\pi$ Capricorni.....	108.44	2	20.18. 9.27	+ 3,442
$\gamma^1$ Ophiuchi.....	114. 6	3	17. 8. 15.17	+ 3,651	$\theta$ Cephei.....	27.33	3	20.26. 53.75	+ 1,014
A.S.C. 1974.....	113.53	2	17. 8. 21.04	+ 3,646	$\nu$ Capricorni.....	108.42	2	20.30. 56.02	+ 3,426
$\delta^1$ Ophiuchi.....	90.16	4	17. 8. 24.06	+ 3,075	Piazz. XX. 429.....	40. 9	3	20.53. 22.81	+ 1,916
Piazz. XVII. 64.....	61. 0	2	17.12. 11.24	+ 3,674	$\eta$ Capricorni.....	110.29	1	20.55. 17.39	+ 3,429
$\rho$ Herculis.....	52.42	3	17.12. 32.38	+ 3,051	$\zeta^1$ Cygni.....	52. 2	8	20.59. 44.15	+ 2,691
$\epsilon^2$ Ophiuchi.....	113.50	1	17.18. 10.20	+ 2,057	$\chi^3$ Capricorni.....	111.12	4	21. 0. 23.53	+ 3,455
$\alpha$ Ormion.....	77.19	56	17.21. 39.51	+ 3,650	* (Mag. 9).....	60.25	4	21. 1. 9.00	+ 2,535
$\beta$ Ophiuchi.....	85.22	3	17.27. 30.57	+ 2,773	* (Mag. 8,9).....	25. 2	4	21. 2. 40.26	+ 1,068
* (Mag. 8).....	87.59	3	17.35. 34.24	+ 2,961	$\delta$ Equulei.....	80.38	4	21. 6. 41.35	+ 2,917
* (Mag. 9,10).....	48.12	1	17.41. 14.83	+ 3,022	$\Sigma$ 2776.....	101. 1	4	21. 6. 44.85	+ 3,247
A.S.C. 2052.....	120.11	1	17.46. 10.07	+ 1,875	$\kappa$ Capricorni.....	105.50	2	21. 6. 52.92	+ 3,329
$\gamma^2$ Sagittarii.....	120.25	2	17.48. 48.71	+ 3,847	* (Mag. 9,10).....	76.52	3	21. 8. 59.87	+ 2,857
* (Mag. 7,8).....	89. 3	3	17.55. 31.85	+ 3,853	* (Mag. 9).....	76.43	2	21. 9. 17.60	+ 2,855
$\lambda$ Sagittarii.....	115.30	3	18. 8. 56.95	+ 3,046	$\iota$ Capricorni.....	107.31	1	21.13. 19.65	+ 3,349
* (Mag. 8,9).....	71.50	5	18.18. 5.64	+ 3,704	$\beta$ Aquarii.....	95.16	31	21.23. 8.01	+ 3,163
$\delta$ URSÆ MINORIS.....	3.24	53	18.20. 21.14	+ 2,632	$\epsilon$ Capricorni.....	110.11	2	21.28. 6.67	+ 3,371
* (Mag. 8,9).....	70.13	9	18.23. 55.13	-19,228	$\gamma$ Capricorni.....	107.23	2	21.31. 13.06	+ 3,322
A.S.C. 2154.....	111.11	3	18.25. 1.03	+ 2,591	$\kappa$ Capricorni.....	109.35	5	21.33. 42.99	+ 3,352
* (Mag. 7,8).....	90.26	2	18.29. 20.97	+ 3,582	$\delta$ Capricorni.....	106.51	4	21.38. 12.21	+ 3,303
* (Mag. 8,9).....	38.23	2	18.29. 22.89	+ 3,079	$\alpha$ Aquarii.....	91. 6	20	21.57. 33.95	+ 3,083
* (Mag. 7,8).....	38.21	2	18.30. 9.21	+ 1,395	$\iota$ Aquarii.....	104.39	4	21.57. 47.41	+ 3,246
$\phi$ Sagittarii.....	117. 9	1	18.30. 48.47	+ 1,394	$\theta$ Aquarii.....	98.35	2	22. 8. 23.23	+ 3,163
$\psi$ Aquilæ.....	91. 7	3	18.35. 39.50	+ 3,746	$\zeta$ Aquarii.....	90.50	5	22.20. 35.70	+ 3,077
$\iota$ Aquilæ.....	94.55	3	18.38. 12.88	+ 3,094	$\sigma$ Aquarii.....	101.30	1	22.22. 10.76	+ 3,181
* (Mag. 8).....	68.11	8	18.38. 41.16	+ 3,182	$\eta$ Aquarii.....	90.56	4	22.27. 8.03	+ 3,060
$\epsilon$ Lyrae.....	50.30	3	18.38. 48.52	+ 2,541	$\kappa$ Aquarii.....	95. 3	1	22.29. 28.15	+ 3,114
$\delta$ Lyrae.....	50.33	3	18.39. 2.38	+ 1,982	$\lambda$ Pegasi.....	67.16	3	22.38. 49.96	+ 2,874
$\sigma$ Sagittarii.....	116.29	1	18.39. 4.83	+ 1,984	$\mu$ Pegasi.....	66.14	3	22.42. 17.32	+ 2,873
$\theta$ Herculis.....	67.33	3	18.45. 20.56	+ 3,722	$\lambda$ Aquarii.....	98.26	5	22.44. 15.90	+ 3,133
* (Mag. 7,8).....	92. 0	3	18.47. 59.75	+ 2,528	$\kappa^2$ Piscium.....	90.40	1	22.52. 25.67	+ 3,073
$\tau$ Sagittarii.....	117.54	1	18.48. 4.00	+ 3,114	$\alpha$ PEGASI.....	75.39	35	22.56. 47.76	+ 2,977
$f$ Aquilæ.....	95.43	4	18.56. 56.57	+ 3,755	$\phi$ Aquarii.....	96.55	4	23. 6. 2.23	+ 3,106
Piazz. XIX. 85.....	94. 1	2	19.12. 0.39	+ 3,196	$\psi^1$ Aquarii.....	99.57	3	23. 7. 30.41	+ 3,122
$\chi^1$ Sagittarii.....	114.49	3	19.14. 8.64	+ 3,158	$\gamma$ Piscium.....	87.35	2	23. 8. 52.41	+ 3,056
$h^2$ Sagittarii.....	115.14	2	19.15. 31.87	+ 3,654	$\eta$ Piscium.....	96. 0	3	23.11. 6.19	+ 3,098
$p$ Aquilæ.....	95. 0	4	19.26. 57.64	+ 3,654	$\kappa^1$ Piscium.....	89.37	5	23.18. 43.87	+ 3,067
$\alpha$ AQUILÆ.....	81.33	58	19.29. 17.99	+ 3,177	$\lambda$ Piscium.....	89. 6	4	23.33. 53.08	+ 3,066
$\beta$ AQUILÆ.....	83.59	44	19.42. 58.61	+ 2,926	$n$ Piscium.....	93.39	4	23.39. 43.07	+ 3,076
$\epsilon$ Sagittarii.....	118. 9	1	19.47. 27.26	+ 2,945	$p$ Piscium.....	94.27	3	23.50. 28.96	+ 3,073
$\Sigma$ 2652.....	28.24	4	19.52. 48.59	+ 3,699	$\omega$ Piscium.....	84. 1	2	23.51. 6.10	+ 3,063
$\beta$ Capricorni.....	102.49	3	20. 6. 24.33	+ 0,962	$q$ Piscium.....	93.55	3	23.53. 37.55	+ 3,071
$\alpha^1$ CAPRICORNI.....	103. 2	23	20. 7. 31.14	+ 3,327	* (Mag. 8,9).....	26.21	3	23.54. 18.66	+ 3,001
			20. 9. 10.36	+ 3,332	Piazz. XXIII. 269.....	26. 7	3	23.56. 43.33	+ 3,029



ZENITH DISTANCES  
OBSERVED WITH THE MURAL CIRCLE,  
AND  
CALCULATION  
OF  
GEOCENTRIC NORTH POLAR DISTANCES.

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1840.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Jan. 2	(a) ☉ N.L. M. ....	118.15	4.22,6	24,6	23,5	19,6	27,6	23,0	10,255	-3,13			118.19.19,25	C.
	☉ S.L. ....	118.50	1.42,0	46,3	44,0	41,2	48,4	43,2					118.51.43,75	C.
Jan. 3	(b) λ Drac. SP. R. M. ....	280.55	4.41,3	43,2	44,9	38,1	48,3	44,2	8,989	+23,13	-1 $\frac{1}{2}$	+0,95	281.0.6,25	C.
	λ Draconis SP. ....	345.50	3.49,0	51,8	54,4	46,6	57,9	50,5			+1 $\frac{1}{2}$	-0,95	345.53.49,78	C.
Jan. 5	α Lyrae R. M. ....	209.50	3.46,4	47,6	48,6	42,6	49,5	46,2	13,674	-1.14,55	-1	-0,12	209.52.31,86	C.
	α Lyrae ....	57.0	1.29,2	30,2	30,8	22,4	32,0	27,7			+1	+0,12	57.1.28,72	C.
Jan. 6	(c) ☉ N.L. M. ....	117.50	4.20,4	21,7	23,8	16,6	23,8	21,5	8,113	+41,66	+1	+0,03	117.55.2,66	C.
	☉ S.L. ....	118.25	2.25,5	26,5	27,5	22,7	27,5	25,5			+2	-0,07	118.27.25,61	C.
	β Ursae Min. R. M. ....	346.0	2.18,0	22,9	23,1	17,2	22,9	22,2	11,407	-27,09	+1	-0,55	346.1.53,23	C.
	β Ursae Minoris ...	20.50	2.3,9	5,2	10,6	0,5	9,3	3,9			+2 $\frac{1}{2}$	+3,47	20.52.8,87	C.
	Mercury, center ...	117.0	2.3,3	7,8	10,8	3,8	9,0	5,7					117.2.6,57	C.
	α Lyrae R. M. ....	209.50	3.39,3	41,2	43,3	37,1	44,0	40,6	13,386	-1.8,46			209.52.32,17	C.
	α Lyrae ....	57.0	1.27,8	27,0	32,6	21,8	32,3	28,5			+2	+0,48	57.1.28,70	C.
Jan. 7	☉ S.L. M. ....	118.15	4.32,5	33,7	36,4	29,0	36,6	33,3	8,214	+39,46			118.20.12,69	C.
	☉ N.L. ....	117.45	2.47,3	49,8	53,5	46,4	52,5	49,6					117.47.49,63	C.
	ζ Ursae Min. SP. } R. M. ....	272.55	2.36,6	39,8	43,6	35,9	38,9	39,3	13,893	-1.19,05			272.56.19,77	G.
	ζ Ursae Min. SP. ...	353.55	2.38,2	41,1	45,3	35,4	44,0	41,1					353.57.40,65	G.
Jan. 10	(d) ☉ S.L. ....	164.45	2.12,3	8,3	13,3	11,8	14,8	15,3			-2	-9,10	164.47.3,98	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,312	-4,40	-1	-4,55	164.47.4,13	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,521	-8,69			164.47.4,39	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,768	-13,75	+1	+4,55	164.47.3,88	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,959	-17,56	+2	+9,10	164.47.4,62	G.
	d Piscium ....	157.35	4.42,0	33,8	43,3	39,4	44,9	44,2					157.39.42,22	G.
	Polaris R. M. ....	328.55	4.39,5	31,4	38,8	37,5	44,0	40,8	8,607	+31,27			329.0.10,89	G.
	Polaris ....	76.30	1.51,8	46,1	51,1	48,0	50,7	50,7					76.31.50,10	G.
	Venus S.L. ....	183.20	1.34,4	29,5	32,8	30,9	34,2	31,8					183.21.33,07	G.
	Mercury, center ...	187.5	1.44,0	40,9	42,8	42,8	44,9	44,7					187.6.43,70	G.
	α Lyrae R. M. ....	279.10	2.15,0	8,8	13,1	11,4	12,8	13,0	12,118	-42,01			279.11.30,79	G.
	α Lyrae ....	126.20	0.31,2	29,0	30,1	28,2	31,8	30,0					126.20.30,15	G.
Jan. 11	(e) ☉ N.L. M. ....	186.35	2.27,0	22,7	25,6	25,8	26,1	29,3	20,840	-3.44,02			186.33.42,56	G.
	☉ S.L. ....	187.5	1.10,4	8,1	9,8	10,8	10,8	11,1					187.6.10,40	G.
	☉ S.L. ....	158.5	1.36,0	32,8	36,8	33,3	37,8	36,8			+3	+13,56	158.6.49,48	G.
	ε Piscium ....	157.55	1.7,3	5,0	8,4	6,1	8,2	9,1					157.56.7,58	G.
	Polaris R. M. ....	329.0	0.50,0	49,1	49,1	51,0	50,3	52,9	12,049	-40,56			329.0.10,01	G.
	Polaris ....	76.30	1.51,0	46,1	49,4	47,6	48,9	50,3					76.31.49,25	G.
	(f) ε Geminor. R. M. ....	265.50	0.8,9	8,9	9,1	7,8	8,3	9,8	8,340	+36,83			265.50.45,66	G.
	ε Geminorum ....	139.40	1.16,6	11,6	15,8	12,4	14,3	15,8					139.41.14,67	G.
Jan. 12	ε Piscium ....	157.55	1.8,9	6,0	8,9	8,0	8,1	10,4					157.56.8,62	G.
	Polaris R. M. ....	329.0	1.14,2	11,4	12,1	12,7	13,1	15,9	13,050	-1.1,45			329.0.12,03	G.
	Polaris ....	76.30	1.51,0	45,8	49,3	46,9	48,2	50,1					76.31.48,92	G.
	☉ S.L. ....	151.40	1.61,9	57,2	63,0	58,3	61,4	62,5			-2	-8,58	151.41.52,54	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,318	-4,53	-1	-4,29	151.41.52,30	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,500	-8,24			151.41.52,88	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,730	-12,96	+1	+4,29	151.41.52,45	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,959	-17,56	+2	+8,58	151.41.52,14	G.
	Venus S.L. ....	183.45	3.13,9	10,0	16,0	13,7	17,4	19,0					183.48.15,67	G.
Jan. 13	☉ N.L. M. ....	186.15	0.31,7	30,3	30,0	29,9	34,8	32,9	12,499	-49,96			186.14.41,74	G.
	☉ S.L. ....	186.45	2.7,0	4,3	7,8	6,5	10,3	8,8					186.47.7,88	G.
	ψ Arietis ....	147.55	1.26,3	19,3	27,0	22,1	27,5	26,0					147.58.25,38	G.
	☉ S.L. ....	145.55	1.15,8	11,5	16,2	11,6	16,0	16,1			-2	-7,54	145.56.7,24	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,329	-4,76	-1	-3,77	145.56.6,25	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,492	-8,08			145.56.6,70	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,691	-12,14	+1	+3,77	145.56.6,41	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	10,864	-15,59	+2	+7,54	145.56.6,73	G.

Coincidences at the five wires and Runs taken Jan. 1, 3 $\frac{1}{2}$ h. (Temp. 50°.) Runs taken Jan. 13, 2 $\frac{1}{2}$ h. (Temp. 38°.)  
Between the observations of Jan. 7 and Jan. 10 the Circle was taken from the wall and its axis cleaned, and the Telescope was moved on the Circle about 70°. At the same time the object-glass of Microscope B was adjusted to make the image of the divisions coincide with the cross-wires. By this alteration the Run of that Microscope is much increased.

(a) Too near the fixed wire for satisfactory observation. The preceding division being bisected by F, the Run (+1",0) has been added to the reading of that Microscope. (b) Thought to be good. (c) S.L. unsatisfactory. Corrections for change of N.P.D. = +0",09 and +0",18 respectively. (d) Good. (e) N.L. unsatisfactory. (f) A bad blur.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	"	"	"	"	"	"	"
58.02	74.52.18.25	29,670	48.3	50.0	3.30.62	8.40	16.17.30	112.59.6.05	-19.68	-19.68	☉. ☉. α Drac. SP. R. α Draconis SP.
	75.24.42.75				3.38.52	8.42		112.59.3.83			
	-57.33.5.25	29,880	43.6	43.4	1.32.62			-19.47.29.59			
	-57.33.11.22							-19.47.35.56			
60.29	13.34.29.14	29,992	37.5	36.6	14.52		16.17.20	51.21.51.94	-10.73	-10.73	α Lyrae R. α Lyrae.
	13.34.27.72							51.21.50.52			
61.05	74.28.1.66	30,000	37.2	37.0	3.33.06	8.38	16.17.20	112.34.51.82	-25.48	-25.48	☉. ☉. β Ursae Min. R. β Ursae Minoris.
	75.0.24.61				3.40.88	8.40		112.34.48.17			
	-22.34.52.23	30,200	34.6	32.1	25.41			15.11.50.64			
	-22.34.52.13							15.11.50.74			
60.44	73.35.5.57	30,208	32.6	31.8	3.24.97	8.29	16.17.20	111.25.30.53	-11.04	-11.04	α Lyrae R. α Lyrae.
	13.34.28.83	30,192	33.5	32.9	14.73			51.21.51.84			
	13.34.27.70							51.21.50.71			
60.21	74.53.11.69	30,178	33.6	33.8	3.41.88	8.40	16.17.20	112.27.36.25	-23.56	-23.56	☉. ☉. ζ U. Min. SP. R. ζ Ursae Min. SP.
	74.20.48.63				3.34.09	8.38		112.27.39.82			
	-49.29.18.77	30,120	30.6	27.0	1.12.01			-11.43.22.50			
	-49.29.20.35							-11.43.24.08			
60.50	52.1.3.74	30,418	34.6	33.0			15.47.81	88.48.13.03	+3.37	+3.37	d Piscium. Polaris R.
	52.1.3.89							88.48.13.18			
	52.1.4.15				1.18.54	45.29.72		88.48.13.44			
	52.1.3.64							88.48.12.93			
60.47	52.1.4.38						11.134	88.48.13.67	+25.36	+25.36	Venus. Mercury.
	44.53.41.98				1.1.14			82.41.51.10			
	-36.14.10.65	30,430	34.2	32.6	45.05			1.32.12.58			
	-36.14.10.14							1.32.13.09			
60.63	70.35.32.83	30,416	31.2	27.2	2.54.96	9.28	16.17.10	108.25.15.92	+4.70	+4.70	α Piscium. Polaris R.
	74.20.43.46	30,412	29.8	29.2	3.37.87	7.73		112.11.21.88			
	13.34.29.45		31.3	31.2	14.89			51.21.52.62			
	13.34.29.01							51.21.53.08			
60.17	73.47.42.32	30,400	33.0	33.3	3.28.38	8.35	15.56.58	111.54.27.73	+25.36	+25.36	α Geminor. R. α Geminorum.
	74.20.10.16				3.35.75	8.38		111.54.28.71			
	45.20.49.24	30,376	33.4	32.0	1.2.16	41.24.71		82.11.38.39			
	45.10.7.34				1.1.78			82.58.17.40			
60.48	-36.14.9.77				45.03		16.5.09	1.32.13.48	+4.63	+4.63	Polaris R.
	-36.14.10.99							1.32.12.26			
	26.55.14.58	30,310	30.4	28.9	31.35			64.42.54.21			
	26.55.14.45							64.42.54.06			
60.48	45.10.8.38	30,146	34.1	33.3	1.1.14		16.16.90	82.58.17.80	+25.46	+25.46	α Piscium. Polaris R.
	-36.14.11.79				44.57			1.32.11.92			
	-36.14.11.32							1.32.12.39			
	58.55.52.30	30,132	34.0	33.7				75.50.51.99			
60.48	58.55.52.06				49.05	36.52.55	16.5.09	75.50.51.75	+10.23	+10.23	☉. ☉. α Arietis.
	58.55.52.64							75.50.52.33			
	58.55.52.21							75.50.51.90			
	58.55.51.90							75.50.51.59			
60.48	71.2.15.45	30,050	33.8	33.0	2.54.96	9.16	16.12.69	108.51.59.60	+10.23	+10.23	Venus.
	73.28.41.50	30,008	37.2	37.6	3.19.77	8.34		111.35.18.11			
	74.1.7.64				3.26.74	8.36		111.35.17.40			
	33.12.25.14	29,900	35.4	34.0	42.50			75.0.15.92			
60.48	33.10.7.00						16.12.69	70.9.22.29	+10.23	+10.23	☉. ☉. α Arietis.
	33.10.6.01							70.9.21.30			
	33.10.6.46				39.37	32.19.69		70.9.21.75			
	33.10.6.17							70.9.21.46			
60.48	33.10.6.49						16.12.69	70.9.21.78	+10.23	+10.23	☉. ☉. α Arietis.

Coincidence of Micrometer Wire with fixed Wire = 107,093, 107,101, 107,105, 107,109, 107,117 at the five wires.

One Micrometer Revolution = 20".868.

Correction for Run = -7".3. From Jan. 5 = -2".3, (adopted on account of the fall of temperature, from the Run taken on Jan. 13, assuming that the Run of B was +1".0 before the adjustment of its object-glass). From Jan. 10 = +6".1.

Adopted Zenith Point = 45°.37'.1".00, (continued from the observations of 1839 without including those of 1840 in the determination). From Jan. 10 = 112°.46'.0".24.

Assumed Co-latitude = 57°.47'.8".28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Jan. 13	$\beta$ Persei R. M. ....	280. 50	2. 25,5	24,0	25,9	24,2	26,1	28,0	6,489	+ 1. 15,46			280. 53. 41,58	G.
	$\beta$ Persei. ....	124. 35	3. 20,4	12,4	19,5	15,4	19,8	18,8					124. 38. 18,58	G.
	$\epsilon$ Arietis. ....	145. 50	0. 60,0	56,4	61,8	56,9	60,0	59,9					145. 50. 59,37	G.
	$\alpha$ Persei R. M. ....	289. 50	0. 21,8	20,8	19,8	19,0	19,9	20,1	9,217	+ 18,53			289. 50. 38,83	G.
	$\alpha$ Persei. ....	115. 40	1. 23,0	17,5	21,8	19,0	20,3	20,2					115. 41. 20,57	G.
	$g$ Arietis. ....	140. 45	3. 58,7	50,6	59,8	54,0	58,3	57,9					140. 48. 57,35	G.
Jan. 15	(a) $\odot$ N.L. M. ....	185. 50	4. 9,2	3,8	10,0	8,0	9,6	11,0	10,572	- 9,41			185. 54. 0,04	G.
	$\odot$ S.L. ....	186. 25	1. 24,7	23,0	22,0	20,8	25,5	24,4					186. 26. 23,68	G.
	Venus S.L. ....	184. 25	0. 13,0	11,4	13,0	11,8	14,1	14,8					184. 25. 13,05	G.
	$\alpha$ Ophiuchi R. M. ....	253. 10	3. 18,0	10,1	14,6	13,5	17,5	18,8	6,222	+ 1. 21,36			253. 14. 37,44	G.
	$\alpha$ Ophiuchi. ....	152. 15	2. 24,9	19,4	24,2	21,5	25,2	26,2					152. 17. 24,05	G.
	Mercury, center. .	187. 50	0. 55,0	54,1	54,8	55,0	56,3	55,1					187. 50. 55,23	G.
	$\alpha$ Lyrae R. M. ....	279. 10	0. 28,9	25,3	24,0	25,9	27,0	28,4	7,203	+ 1. 0,90			279. 11. 27,57	G.
	$\alpha$ Lyrae. ....	126. 20	0. 32,0	30,1	31,6	29,4	32,4	31,4					126. 20. 31,25	G.
Jan. 16	$\odot$ S.L. M. ....	186. 15	0. 32,0	28,0	27,1	33,5	32,6	34,0	10,170	- 1,02			186. 15. 30,28	G.
	$\odot$ N.L. ....	185. 40	2. 63,4	57,8	61,2	64,8	63,4	65,8					185. 43. 3,35	G.
Jan. 17	(b) $\gg$ N.L. M. ....	138. 5	1. 58,4	53,9	58,7	54,8	56,8	57,8	11,204	- 22,81	-2	+ 3,58	138. 6. 37,89	G.
	$\gg$ N.L. M. ....	...	...	...	...	...	...	...	11,109	- 20,70	-1	+ 1,79	138. 6. 38,21	G.
	$\gg$ N.L. M. ....	...	...	...	...	...	...	...	11,021	- 18,78			138. 6. 38,34	G.
	$\gg$ N.L. M. ....	...	...	...	...	...	...	...	10,959	- 17,38	+1	- 1,79	138. 6. 37,95	G.
	$\gg$ N.L. M. ....	...	...	...	...	...	...	...	10,891	- 15,84	+2	- 3,58	138. 6. 37,70	G.
	$\delta$ Geminorum. ....	142. 40	1. 59,9	54,0	59,8	55,2	57,9	58,4					142. 41. 57,93	G.
	$\epsilon$ Canis Min. R. M. ....	250. 5	2. 8,0	4,1	6,7	5,3	6,3	8,3	3,921	+ 2. 9,38			250. 9. 16,26	G.
	$\epsilon$ Canis Minoris. .	155. 20	2. 45,3	40,4	45,3	42,5	45,2	46,6					155. 22. 44,77	G.
	Castor R. M. ....	272. 45	2. 11,2	7,2	10,6	8,5	7,8	10,8	9,099	+ 21,33			272. 47. 31,13	G.
	Castor. ....	132. 40	4. 31,0	21,0	29,0	26,7	28,5	30,0					132. 44. 28,62	G.
Jan. 19	$\theta$ Cancr. ....	146. 20	0. 26,0	21,8	23,5	21,8	22,8	24,8					146. 20. 23,53	G.
	$\delta$ Cancr. ....	146. 10	3. 59,4	51,3	58,7	55,0	58,7	59,4					146. 13. 57,88	G.
	$\gg$ S.L. ....	146. 35	4. 41,0	31,3	40,5	35,9	41,0	41,4			-2	+ 7,64	146. 59. 47,11	G.
	$\gg$ S.L. M. ....	...	...	...	...	...	...	...	9,937	+ 3,76	-1	+ 3,82	146. 39. 47,05	G.
	$\gg$ S.L. M. ....	...	...	...	...	...	...	...	9,758	+ 7,57			146. 39. 47,04	G.
	$\gg$ S.L. M. ....	...	...	...	...	...	...	...	9,573	+ 11,53	+1	- 3,82	146. 39. 47,18	G.
	$\gg$ S.L. M. ....	...	...	...	...	...	...	...	9,410	+ 15,07	+2	- 7,64	146. 39. 46,90	G.
Jan. 21	$\odot$ N.L. M. ....	184. 40	3. 18,0	13,7	14,4	17,3	19,0	19,7	12,895	- 57,91			184. 42. 19,81	G.
	$\odot$ S.L. ....	185. 10	4. 43,1	36,2	41,1	42,1	45,9	44,7					185. 14. 43,18	G.
Jan. 22	Pollux R. M. ....	268. 55	2. 20,6	13,8	18,0	16,4	15,2	18,7	8,030	+ 43,64			268. 53. 1,26	G.
	Pollux. ....	136. 30	3. 59,9	51,0	58,8	55,2	57,1	58,0					136. 33. 57,50	G.
	55 Camelop. R. M. ....	309. 25	3. 15,5	8,1	12,8	11,9	12,0	13,4	7,719	+ 50,13			309. 29. 3,10	G.
	55 Camelopardali. .	96. 0	2. 62,0	53,2	58,2	55,5	58,0	58,0					96. 2. 58,12	G.
	$\alpha$ Urs. Maj. R. M. ....	301. 45	2. 21,0	15,3	17,5	16,9	17,0	18,7	8,859	+ 26,75			301. 47. 44,98	G.
	$\alpha$ Ursae Majoris. .	103. 40	4. 21,3	9,3	17,0	14,9	16,6	17,5					103. 44. 17,02	G.
Jan. 25	(c) $\odot$ N.L. M. ....	183. 45	2. 19,0	14,9	17,5	16,8	19,9	20,0	11,463	- 28,00			183. 46. 50,52	G.
	$\odot$ S.L. ....	184. 15	4. 16,2	8,0	13,9	13,5	14,0	15,7					184. 19. 14,45	G.
Jan. 26	$\gg$ S.L. ....	186. 40	0. 43,6	41,0	41,6	42,8	42,0	45,6					186. 40. 42,92	G.
	$\gg$ S.L. M. ....	...	...	...	...	...	...	...	9,904	+ 4,63	+1	- 3,04	186. 40. 44,51	G.
	$\gg$ S.L. M. ....	...	...	...	...	...	...	...	9,783	+ 7,28	+2	- 6,08	186. 40. 44,12	G.
	Venus S.L. ....	186. 5	0. 20,1	17,5	17,4	17,8	16,8	18,9					186. 5. 18,15	G.
	$\alpha$ Lyrae R. M. ....	279. 5	4. 40,8	33,2	38,0	37,5	39,7	39,9	5,008	+ 1. 46,70			279. 11. 25,87	G.
	$\alpha$ Lyrae. ....	126. 20	0. 37,6	34,3	36,6	34,7	35,3	36,1					126. 20. 35,90	G.
	(d) Mercury, center. .	188. 0	0. 6,1	5,2	6,3	5,3	7,1	5,1					188. 0. 5,87	G.
Jan. 27	$\odot$ N.L. M. ....	183. 15	2. 23,2	20,9	22,8	22,9	25,0	26,2	11,389	- 26,46			183. 16. 57,56	G.
	$\odot$ S.L. ....	183. 45	4. 22,7	15,9	22,0	20,8	24,1	24,0					183. 49. 22,52	G.

Coincidences at the five wires and Runs taken Jan. 26, 22<sup>h</sup>. (Temp. 38°.)

(a) The glasses and divisions were covered with moisture from the change of temperature: the observation is consequently very doubtful.

(b) Good.

(c) Misty.

(d) Ill-defined and tremulous.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
—	—	Inch.	—	—	—	—	—	—	—	—	—
59.98	11. 52. 18.66 11. 52. 18.14 33. 4. 59.13	29.882	35.3	33.8	12.67 39.24				49. 39. 39.61 49. 39. 39.09 70. 52. 46.65	+ 17.76 + 13.86	$\beta$ Persei R. $\beta$ Persei. $\delta$ Arietis.
59.70	2. 55. 21.41 2. 55. 20.33 28. 2. 57.11				3.08 32.10				40. 42. 32.77 40. 42. 31.69 65. 50. 37.49	+ 19.91 + 12.84	$\alpha$ Persei R. $\alpha$ Persei. $g$ Arietis.
60.75	78. 7. 59.80 73. 40. 23.44 71. 39. 12.81	30.000	42.3	44.4	3. 12.74 3. 19.31 2. 56.02	8.32 8.35 8.97	11.030	16. 16.80	111. 14. 29.30 111. 14. 25.88 109. 28. 58.58		$\odot$ . $\odot$ . Venus.
	39. 31. 22.80 39. 31. 23.81	29.590 29.600	40.2 40.8	39.3 40.5	48.52			9.56	77. 19. 19.60 77. 19. 20.61	- 14.36	$\alpha$ Ophiuchi R. $\alpha$ Ophiuchi.
	75. 4. 54.90	29.618	42.3	43.2	3. 36.32	7.20			112. 55. 32.99		Mercury.
	13. 34. 32.67 13. 34. 31.01				14.14				51. 21. 55.09 51. 21. 53.43	- 13.75	$\alpha$ Lyrae R. $\alpha$ Lyrae.
	73. 29. 30.04 72. 57. 3.11	29.600	44.7	46.0	3. 13.78 3. 7.43	8.34 8.31		16. 16.80	111. 3. 26.96 111. 3. 27.31		$\odot$ . $\odot$ .
60.52	25. 20. 37.65 25. 20. 37.97 25. 20. 38.10	29.778	37.4	35.8					62. 59. 9.59 62. 59. 9.91 62. 59. 10.04		$\delta$ . $\delta$ . $\delta$ .
	25. 20. 37.71 25. 20. 37.46				28.31	25. 22.25		16. 17.60	62. 59. 9.65 62. 59. 9.40		$\delta$ . $\delta$ .
	29. 55. 57.69				34.42				67. 43. 40.39	+ 4.39	$\epsilon$ Geminorum.
	42. 36. 43.98				54.96				80. 24. 47.22	+ 3.27	$\epsilon$ Canis Min. R.
	42. 36. 44.53								80. 24. 47.77		$\epsilon$ Canis Minoris.
	19. 58. 29.11 19. 58. 28.38				21.73				57. 45. 59.12 57. 45. 58.39	+ 3.97	Castor R. Castor.
	33. 34. 23.29 33. 27. 57.64	29.446	43.2	42.2	38.71 38.55				71. 22. 10.28 71. 15. 44.47	- 0.19 - 1.04	$\theta$ Cancri. $\epsilon$ Cancri.
	33. 53. 46.87 33. 53. 46.81		42.8	41.6					70. 53. 5.85 70. 53. 5.79		$\delta$ . $\delta$ .
	33. 53. 46.80 33. 53. 46.94				39.23	32. 29.57		15. 58.96	70. 53. 5.78 70. 53. 5.92		$\delta$ . $\delta$ .
	33. 53. 46.66								70. 53. 5.64		$\delta$ .
59.38	71. 56. 19.57 72. 28. 42.94	29.142	49.6	50.0	2. 52.35 2. 57.89	8.26 8.29		16. 16.30	110. 2. 28.24 110. 2. 24.52		$\odot$ . $\odot$ .
	23. 47. 58.98 23. 47. 57.26	29.750	43.4	41.4	26.03				61. 35. 33.29 61. 35. 31.57	+ 3.16	Pollux R. Pollux.
	- 16. 43. 2.86 - 16. 43. 2.12				17.73				21. 3. 47.69 21. 3. 48.43	+ 4.05	55 Camelopard. R. 55 Camelopard.
	- 9. 1. 44.74 - 9. 1. 43.22				9.38				28. 45. 14.16 28. 45. 15.68	+ 1.27	$\alpha$ Ura. Maj. R. $\alpha$ Urae Majoris.
	71. 0. 50.28 71. 33. 14.21	29.192	42.6	41.9	2. 46.60 2. 51.74	8.21 8.24		16. 15.90	109. 6. 52.85 109. 6. 50.09		$\odot$ . $\odot$ .
60.89	73. 54. 42.68 73. 54. 44.27 73. 54. 43.86	29.240	39.3	37.4					110. 38. 26.50 110. 38. 28.09 110. 38. 27.70		$\delta$ . $\delta$ . $\delta$ .
	73. 19. 17.91 13. 34. 34.37	29.348 29.354	38.2 39.0	37.5 38.7	3. 13.56 14.15	8.32	10.952	8.68	111. 9. 22.75 51. 21. 56.80		Venus.
	13. 34. 35.66 75. 14. 5.63								51. 21. 58.09 113. 4. 45.56	- 16.89	$\alpha$ Lyrae R. $\alpha$ Lyrae. Mercury.
	70. 50. 57.32 71. 3. 22.28	29.350	42.4	42.7	2. 42.70 2. 47.60	8.19 8.21		16. 15.60	108. 36. 35.71 108. 36. 54.35		$\odot$ . $\odot$ .

Coincidence of Micrometer Wire with fixed Wire = 10', 09.3, 10', 101, 10', 103, 10', 109, 10', 117 at the five wires. From Jan. 15 = 10', 111, 10', 117, 10', 121, 10', 126, 10', 132.

One Micrometer Revolution = 20". 568.

Correction for Runs = + 6". 1 From Jan. 21 = + 6". 4.

Adopted Zenith Point = 113'. 45" 0". 24.

Assumed Co-latitude = 37°. 47'. 8". 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
		° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	r.	" "		"	° ' "	
Jan. 27	$\theta$ Persei R. M. ....	289. 0	4. 29,0	21,3	28,0	27,2	30,3	29,3	4,693	+ 1. 53,28			289. 6. 21,75	G.
	$\theta$ Persei.....	116. 25	0. 42,1	38,0	38,8	38,8	39,8	38,6					116. 25. 39,48	G.
	$\beta$ U. Min. SP. R. M. ....	345. 40	3. 16,0	8,6	13,3	15,3	17,2	17,2	8,618	+ 31,36			345. 43. 46,66	G.
	$\beta$ Ursæ Min. SP. ....	59. 45	3. 15,8	8,4	11,5	12,0	13,6	15,1					59. 48. 13,42	G.
	$\alpha$ Persei R. M. ....	289. 45	4. 30,8	21,0	27,4	27,6	30,0	30,9	6,630	+ 1. 12,85			289. 50. 41,77	G.
	$\alpha$ Persei.....	115. 40	1. 21,4	16,7	19,0	19,3	19,8	18,7					115. 41. 19,43	G.
Jan. 29	$\alpha$ Ophiuchi R. M. ....	253. 10	3. 18,7	11,1	14,8	16,2	17,5	18,2	6,320	+ 1. 19,31			253. 14. 36,09	G.
	$\alpha$ Ophiuchi.....	152. 15	2. 24,6	19,1	23,0	22,9	24,1	25,2					152. 17. 23,67	G.
	Venus S.L. ....	186. 20	1. 38,2	33,0	33,9	34,3	38,0	38,2					186. 21. 36,28	G.
	$\alpha$ Lyrae R. M. ....	279. 10	1. 24,0	20,3	20,9	22,8	21,2	22,5	9,989	+ 2,76			279. 11. 25,01	G.
	$\alpha$ Lyrae.....	126. 20	0. 37,7	34,0	36,4	34,2	36,2	36,0					126. 20. 35,88	G.
	Mercury, center. ....	187. 35	1. 63,8	59,0	61,9	62,5	63,2	63,4					187. 37. 2,73	G.
Jan. 30	$\odot$ S.L. M. ....	183. 0	2. 22,3	16,5	21,0	20,3	22,4	22,8	11,108	- 18,51			183. 2. 2,87	G.
	$\odot$ N.L. ....	182. 25	4. 36,1	28,0	34,9	34,9	39,0	37,8					182. 29. 36,10	G.
Jan. 31	(a) $\odot$ N.L. M. ....	182. 10	4. 31,8	24,8	30,7	31,0	34,8	32,4	13,803	- 1. 16,83			182. 13. 15,05	G.
	$\odot$ S.L. ....	182. 45	0. 39,0	38,4	38,7	39,0	43,1	39,8					182. 45. 39,80	G.
	Castor R. M. ....	272. 45	1. 25,5	21,0	22,7	22,1	25,3	24,4	6,822	+ 1. 8,84			272. 47. 32,64	G.
	Castor.....	132. 40	4. 29,7	20,2	26,3	26,4	31,9	29,1					132. 44. 28,22	G.
	Procyon R. M. ....	246. 5	4. 36,2	27,8	32,8	32,8	37,3	37,3	3,200	+ 2. 24,43			246. 11. 59,43	G.
	Procyon.....	159. 15	4. 59,0	50,9	60,1	57,0	63,0	60,4					159. 19. 59,47	G.
	$\kappa$ Ursæ Maj. R. M. ....	288. 15	4. 40,1	31,3	39,0	39,0	42,8	40,8	8,463	+ 34,60			288. 20. 14,42	G.
	$\kappa$ Ursæ Majoris....	117. 10	1. 48,1	42,9	46,0	45,8	47,4	46,0					117. 11. 46,42	G.
Feb. 1	(b) $\odot$ N.L. M. ....	181. 55	2. 24,5	19,6	22,8	24,1	25,3	24,7	12,580	- 51,32			181. 56. 32,70	G.
	$\odot$ S.L. ....	182. 25	3. 56,4	51,4	57,0	56,6	60,0	58,1					182. 28. 57,43	G.
Feb. 3	(c) Venus S.L. ....	186. 35	2. 41,3	38,5	39,7	41,6	44,4	42,1					186. 37. 41,85	G.
Feb. 5	$\beta$ Cancri R. M. ....	250. 10	2. 34,8	30,5	32,8	33,1	38,0	36,0	4,732	+ 1. 52,50			250. 14. 27,25	G.
	$\beta$ Cancri.....	155. 15	2. 31,8	28,8	30,7	31,8	35,2	34,4					155. 17. 32,67	G.
	$\sigma$ Ursæ Maj. R. M. ....	301. 45	2. 34,8	31,2	33,7	34,0	36,8	35,1	9,488	+ 13,25			301. 47. 48,07	G.
	$\sigma$ Ursæ Majoris....	103. 40	4. 14,2	6,2	13,0	12,3	15,9	14,0					103. 44. 13,52	G.
	$\pi^7$ Ursæ Maj. R. M. ....	305. 25	2. 19,9	15,7	19,0	18,5	21,9	20,3	14,690	- 1. 35,30			305. 25. 44,42	G.
	$\pi^7$ Ursæ Majoris....	100. 5	1. 17,9	14,0	17,3	16,6	19,0	17,5					100. 6. 17,33	G.
	$\eta$ Hydre R. M. ....	244. 30	1. 22,7	20,8	20,1	21,8	24,1	24,9	7,408	+ 56,66			244. 32. 19,36	G.
	$\eta$ Hydre.....	160. 55	4. 39,8	34,0	39,5	38,8	44,8	42,0					160. 59. 40,82	G.
Feb. 6	(d) $\odot$ S.L. M. ....	181. 0	4. 23,3	16,1	23,0	21,8	26,6	24,8	20,276	- 3. 31,87			181. 0. 51,68	G.
	$\odot$ N.L. ....	180. 25	3. 26,4	21,8	24,4	27,7	28,2	27,2					180. 28. 26,68	G.
Feb. 7	$\sigma$ Ursæ Maj. R. M. ....	301. 45	2. 17,4	14,0	16,4	16,6	18,8	18,1	8,628	+ 31,20			301. 47. 48,58	G.
	$\sigma$ Ursæ Majoris....	103. 40	4. 13,8	5,6	11,9	11,1	14,9	12,6					103. 44. 12,55	G.
	$\pi^7$ Ursæ Maj. R. M. ....	305. 25	2. 16,3	10,8	15,0	15,2	16,7	17,4	14,490	- 1. 31,13			305. 25. 44,60	G.
	$\pi^7$ Ursæ Majoris....	100. 5	1. 16,2	12,8	16,0	16,1	18,0	16,7					100. 6. 16,25	G.
	(c) $\eta$ Cephei SP. R. M. ....	359. 20	1. 19,0	16,8	19,0	20,7	22,2	21,8	19,979	- 3. 25,67			359. 17. 54,53	G.
	$\eta$ Cephei SP. ....	46. 10	3. 64,5	58,0	62,5	62,8	67,3	67,2					46. 14. 4,60	G.
Feb. 8	$\delta$ S.L. M. ....	153. 25	0. 49,2	45,8	49,9	48,5	51,4	48,8	10,670	- 11,57	- 2	- 8,78	153. 25. 28,75	G.
	$\delta$ S.L. M. ....	...	...	...	...	...	...	...	10,875	- 15,71	- 1	- 4,39	153. 25. 29,00	G.
	$\delta$ S.L. M. ....	...	...	...	...	...	...	...	11,090	- 20,18			153. 25. 28,92	G.
	$\delta$ S.L. M. ....	...	...	...	...	...	...	...	11,290	- 24,23	+ 1	+ 4,39	153. 25. 29,26	G.
	$\delta$ S.L. M. ....	...	...	...	...	...	...	...	11,531	- 29,18	+ 2	+ 8,78	153. 25. 28,70	G.
	$\beta$ U. Min. SP. R. M. ....	345. 40	3. 32,8	27,8	32,0	34,1	39,0	36,3	9,506	+ 12,88			345. 43. 47,31	G.
	$\beta$ Ursæ Min. SP. ....	59. 45	3. 12,0	7,2	11,1	10,3	15,1	13,3					59. 48. 12,18	G.
	$\beta$ Persei R. M. ....	280. 50	3. 18,2	14,1	18,0	18,5	20,4	21,0	9,019	+ 23,04			280. 53. 42,12	G.
	$\beta$ Persei.....	124. 35	3. 19,0	12,2	18,4	16,9	19,1	18,2					124. 38. 18,02	G.
	$\alpha$ Persei R. M. ....	289. 45	4. 33,5	26,4	32,8	32,1	35,8	34,1	6,950	+ 1. 6,21			289. 50. 39,64	G.
	$\alpha$ Persei.....	115. 40	1. 19,3	17,2	18,3	18,3	20,9	18,3					115. 41. 19,00	G.

Coincidences at the five wires and Runs taken Feb. 7, 22<sup>h</sup>. (Temp. 43°.)

(a) Misty. (b) Very cloudy.  
(c) Bad observation: the atmosphere was evidently in a disturbed state.

(d) Hurried. Limbs not good.  
(e) Mercury disturbed by wind.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	inch.	"	"	"	"	"	"	"	"	"
60,62	3. 39. 38,49 3. 59. 39,24	29,500	37,2	39,8	3,76				41. 26. 50,53 41. 26. 51,28	+ 20,20	$\delta$ Persei R. $\delta$ Persei.
60,04	- 52. 57. 46,42 - 52. 57. 46,82				1. 17,70				- 15. 11. 55,84 - 15. 11. 56,24	- 28,98	$\beta$ U. Min. SP. R. $\beta$ Ursæ Min. SP.
60,60	2. 55. 18,47 2. 55. 19,19	29,516	37,6	39,2	3,00				40. 42. 29,75 40. 42. 30,47	+ 20,57	$\alpha$ Persei R. $\alpha$ Persei.
59,88	39. 31. 24,15 39. 31. 23,43	29,828	40,0	35,8	49,38				77. 19. 21,81 77. 19. 21,09	- 17,08	$\alpha$ Ophiuchi R. $\alpha$ Ophiuchi.
60,45	73. 33. 36,04 13. 54. 35,23	29,836	38,0	36,0	3. 20,82 14,46	8,16	10,963	8,79	111. 25. 48,19 51. 21. 57,97		Venus. $\alpha$ Lyrae R.
	13. 34. 35,64 74. 31. 2,40	29,870	39,0	38,1	3. 37,11	6,28			51. 21. 58,38 112. 41. 41,60	- 17,73	$\alpha$ Lyrae. Mercury.
	70. 16. 2,63 69. 43. 35,86	29,866	40,3	40,8	2. 43,98 2. 39,32	8,17 8,14		16. 15,20	107. 49. 31,52 107. 49. 50,52		$\odot$ . $\odot$ .
	69. 27. 14,81 69. 59. 39,56	29,476	43,8	44,9	2. 33,70 2. 38,14	8,13 8,16		16. 15,10	107. 33. 3,76 107. 33. 2,72		$\odot$ . $\odot$ .
60,43	19. 58. 27,60 19. 58. 27,98	29,466	42,4	39,0	21,36				57. 45. 57,24 57. 45. 57,62	+ 4,91	Castor R. Castor.
59,45	46. 34. 0,81 46. 33. 59,23				1. 2,00				84. 22. 11,09 84. 22. 9,51	+ 1,08	Procyon R. Procyon.
60,42	4. 25. 45,82 4. 25. 46,18	29,448	40,8	38,0	4,56				42. 12. 58,66 42. 12. 59,02	- 1,66	$\kappa$ Ursæ Maj. R. $\kappa$ Ursæ Majoris.
	69. 10. 32,46 69. 42. 57,19	29,236	44,0	45,5	2. 30,06 2. 34,37	8,11 8,14		16. 14,90	107. 16. 17,59 107. 16. 16,80		$\odot$ . $\odot$ .
	73. 51. 41,61	28,610	43,5	43,5	3. 12,74	7,89	10,930	8,42	111. 41. 46,52		Venus.
59,96	42. 31. 32,90 42. 31. 32,43	29,490	42,6	40,5	53,69				80. 19. 34,96 80. 19. 34,40	- 0,50	$\beta$ Cancri R. $\beta$ Cancri.
60,80	- 9. 1. 47,83 - 9. 1. 46,72				9,31				28. 45. 11,14 28. 45. 12,25	+ 4,36	$\alpha$ Ursæ Maj. R. $\alpha$ Ursæ Majoris.
60,88	- 12. 39. 44,18 - 12. 39. 42,91				13,17				25. 7. 10,93 25. 7. 12,20	+ 3,75	$\pi^1$ Ursæ Maj. R. $\pi^1$ Ursæ Majoris.
60,09	48. 13. 40,88 48. 13. 40,58				1. 5,51				86. 1. 54,67 86. 1. 54,37	- 2,18	$\eta$ Hydre R. $\eta$ Hydre.
	68. 14. 51,44 67. 42. 26,44	29,636	43,2	44,1	2. 25,52 2. 21,68	8,05 8,02		16. 14,10	105. 48. 3,09 105. 48. 2,48		$\odot$ . $\odot$ .
60,57	- 9. 1. 48,14 - 9. 1. 47,69	29,240	43,8	42,8	9,20				28. 45. 10,74 28. 45. 11,39	+ 4,82	$\alpha$ Ursæ Maj. R. $\alpha$ Ursæ Majoris.
60,43	- 12. 39. 44,36 - 12. 39. 43,90				13,00				25. 7. 10,92 25. 7. 11,29	+ 4,22	$\pi^1$ Ursæ Maj. R. $\pi^1$ Ursæ Majoris.
59,57	- 66. 31. 54,29 - 66. 31. 55,64			42,6	2. 12,52				- 28. 46. 58,53 - 28. 46. 59,88	- 7,52	$\eta$ Cephei SP. R. $\eta$ Cephei SP.
	40. 39. 28,51 40. 39. 28,76	29,414	43,0	42,0		38. 5,03		16. 1,04	77. 33. 20,76 77. 33. 21,01		$\gamma$ . $\gamma$ .
	40. 39. 28,68 40. 39. 29,02				50,04				77. 33. 20,93 77. 33. 21,27		$\gamma$ . $\gamma$ .
	40. 39. 28,46 - 52. 57. 47,07	29,440	40,8	39,8	1. 17,54				77. 33. 20,71 - 15. 11. 56,33		$\gamma$ . $\beta$ U. Min. SP. R.
59,75	- 52. 57. 48,06 11. 52. 18,12								- 15. 11. 57,32 49. 39. 38,73	- 29,85	$\beta$ Ursæ Min. SP. $\beta$ Persei R.
60,07	11. 52. 17,78 2. 55. 20,60				12,33				49. 39. 38,39 40. 42. 31,87	+ 17,55	$\beta$ Persei. $\alpha$ Persei R.
59,22	2. 55. 18,76				2,99				40. 42. 30,03	+ 20,53	$\alpha$ Persei.

Coincidence of Micrometer Wire with fixed Wire = 10",121 at the middle wire. From Feb. 3 = 10",115, 10",122, 10",123, 10",129, 10",133 at the five wires.

One Micrometer Revolution = 20",808.

Correction for Run = + 6",4. From Feb. 1 = + 6",5.

Adopted Zenith Point = 112°. 46'. 0".24.

Assumed Co-latitude = 37°. 47'. 8".28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F								
			"	"	"	"	"	"					"	"	"	
Feb. 10	(a) Venus S.L.	186.30	4.40,9	33,3	38,1	39,3	43,8	42,0	7,018	+1.4,79	+2	-0,18	186.34.40,39			G.
	α Cygni R. M.	285.10	4.43,1	35,5	42,1	41,1	44,7	42,8					285.15.47,36			G.
	α Cygni	120.15	1.12,8	10,7	11,0	11,3	12,2	11,0					120.16.11,77			G.
Feb. 11	(b) ☉ N.L. M.	178.55	0.29,2	29,3	28,0	30,9	32,0	29,1	15,444	-1.51,04			178.53.38,81			G.
	☉ S.L.	179.25	0.60,1	58,1	58,9	60,5	62,5	59,8					179.26.0,20			G.
	α Tauri	143.15	4.43,0	35,8	43,8	42,0	47,9	46,2	11,178	-22,18	-2	-3,88	143.19.44,13			G.
	(b) δ S.L. M.	139.0	0.27,8	27,8	27,9	27,8	33,8	30,7					139.0.3,34			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,270	-23,96	-1	-1,94	139.0.3,50			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,368	-25,97			139.0.3,43			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,479	-28,17	+1	+1,94	139.0.3,17			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,597	-30,55	+2	+3,88	139.0.2,73			G.
	α Aurigæ	132.0	3.54,8	48,1	55,7	52,7	58,7	55,3	7,360	+57,66			132.3.55,07			G.
	α Tauri	143.35	1.46,3	43,3	46,4	47,0	50,3	47,8					143.36.47,23			G.
	55 Camelopardali.	309.25	3.10,4	5,0	10,2	9,4	12,0	11,0	14,500	-1.31,34			309.29.8,01			G.
	55 Camelopardali.	96.0	2.54,2	48,0	51,5	51,6	55,3	53,3					96.2.52,95			G.
	η Cephei SP. R. M.	359.15	4.24,4	16,4	24,0	23,3	30,4	26,4	7,828	+47,89			359.17.53,76			G.
	η Cephei SP.	46.10	3.65,0	58,8	63,5	63,7	68,3	67,7					46.14.5,38			G.
	κ Ursæ Maj. R. M.	288.15	4.28,1	20,1	26,5	27,0	30,4	29,7	11,523	-29,22	+2	-0,14	288.20.15,82			G.
	κ Ursæ Majoris	117.10	1.44,1	41,1	43,7	43,2	47,0	44,3					117.11.44,27			G.
	(c) Venus S.L.	186.30	1.54,5	51,2	51,9	54,0	55,7	54,6	14,384	-1.28,83			186.31.54,07			G.
	α Aurigæ	132.0	3.54,4	50,0	55,9	54,1	58,2	56,1					132.3.55,28			G.
	α Tauri	143.35	1.46,0	44,5	46,6	46,9	49,9	48,2	7,758	+49,35			143.36.47,25			G.
	(d) Capella R. M.	286.20	2.21,4	18,8	19,7	21,4	22,8	23,2					286.23.10,87			G.
	Capella	119.5	3.48,1	42,3	47,4	46,8	50,2	48,3	11,807	-35,14	+1	+0,08	119.8.47,67			G.
	β Tauri R. M.	269.0	2.16,8	13,8	15,0	15,3	19,1	17,9					269.1.41,46			G.
	β Tauri	136.30	0.17,0	15,8	16,0	15,5	20,3	18,3	11,048	-19,47	-2	-0,86	136.30.17,26			G.
	(e) δ S.L. M.	137.20	2.37,8	33,0	36,8	35,9	41,3	39,2					137.22.17,34			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,080	-19,99	-1	-0,43	137.22.17,25			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,113	-20,66			137.22.17,01			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,140	-21,10	+1	+0,43	137.22.17,00			G.
	δ S.L. M.	...	...	...	...	...	...	...	11,190	-22,06	+2	+0,86	137.22.16,47			G.
	γ Tauri	137.20	4.10,3	4,1	11,1	8,3	13,6	11,9	14,530	-1.31,97			137.24.10,42			G.
	ξ Draco SP. R. M.	3.35	3.18,8	14,8	17,7	18,3	23,0	21,2					3.36.47,41			G.
	ξ Draconis SP.	41.55	0.11,0	11,6	10,4	11,4	13,6	13,5	4,731	+1.52,52			41.55.11,95			G.
	α Aurigæ	135.25	0.16,2	15,2	15,6	16,0	18,8	17,7					135.25.16,62			G.
	δ U. Min. SP. R. M.	333.55	0.16,2	16,1	15,2	17,6	20,0	19,4	11,523	-29,22	+2	-0,14	333.57.9,97			G.
	(f) δ Ursæ Min. SP.	71.30	4.51,8	50,5	49,9	51,4	53,3	51,8					71.34.51,45			G.
	(g) Venus S.L.	186.25	3.26,9	20,2	22,0	24,4	26,1	27,0	10,970	-17,58			186.28.24,73			G.
	α Cygni R. M.	285.15	1.16,5	13,9	15,7	17,0	16,4	17,7					285.15.47,15			G.
	α Cygni	120.15	1.13,8	10,8	11,1	12,4	13,3	11,1	10,068	+1,23			120.16.12,23			G.
	(h) Mercury, center	183.5	2.20,9	16,4	19,3	20,4	21,3	21,0					183.7.20,18			G.
Feb. 13	(e) ☉ N.L. M.	178.15	0.31,6	32,0	30,2	32,8	35,3	32,8	3,527	+2.17,73			178.14.3,69			G.
	☉ S.L.	178.45	1.25,4	23,3	25,2	26,9	28,1	25,6					178.46.25,93			G.
	α Arietis R. M.	263.15	1.19,0	16,3	16,9	18,3	18,0	18,9	3,728	+2.13,54			263.16.0,49			G.
	α Arietis	142.15	0.56,8	56,0	58,4	55,6	61,3	55,9					142.15.57,45			G.
	A.S.C. 271	141.0	1.20,3	18,0	19,0	19,0	23,3	19,9	9,287	+17,60	+1	-0,13	141.1.20,08			G.
	θ Persei R. M.	289.5	1.18,7	16,2	17,0	18,8	19,8	17,3					289.6.19,36			G.
	θ Persei	116.25	0.39,3	37,7	39,0	39,0	42,1	37,8	6,285	+1.20,16	+2	+0,51	116.25.39,23			G.
	π Ceti R. M.	226.0	0.39,3	38,4	36,7	40,1	44,7	41,0					226.2.57,85			G.
	π Ceti	179.25	3.58,9	54,2	60,2	59,6	65,8	60,2	14,384	-1.28,83			179.28.59,98			G.
	α Ceti R. M.	243.55	4.34,4	28,1	32,6	32,9	38,3	35,6					244.1.47,76			G.
	α Ceti	161.25	5.10,3	3,8	12,6	8,3	17,0	11,3	9,287	+17,60	+1	-0,13	161.30.11,20			G.
	β Persei R. M.	280.50	3.22,8	18,2	22,6	22,4	26,4	24,1					280.53.40,65			G.
	β Persei	124.35	3.18,3	12,3	18,0	16,6	21,0	17,1	6,285	+1.20,16	+2	+0,51	124.38.18,14			G.
	ε Eridani R. M.	230.30	3.23,4	20,4	21,5	22,6	28,8	25,3					230.34.44,26			G.
	ε Eridani	174.55	2.13,8	10,0	13,9	13,2	18,3	15,2	14,384	-1.28,83			174.57.14,35			G.
	F Eridani	182.55	1.13,9	12,3	14,0	13,1	17,0	14,9					182.56.14,35			G.
	α Tauri	143.15	4.43,1	36,4	44,5	41,3	47,5	44,9					143.19.43,55			G.

Coincidences at the five wires and Runs taken Feb. 18, 1<sup>h</sup>. (Temp. 41°.)

- (a) Correction for change of N.P.D. = + 0",06.  
 (b) Good observations.  
 (c) Very cloudy.  
 (d) Flaring.

- (e) Very good.  
 (f) No correction for runs.  
 (g) Correction for change of N.P.D. = + 0",10.  
 (h) Very faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
59,57	73. 48. 40.15	29,840	42.2	40.7	3. 21.56	7.54	10,933	8.35	111. 38. 54.10		Venus.
	7. 30. 12.88	29,880	43.0	45.3	7.75				45. 17. 28.91	- 10.37	α Cygni R.
	7. 30. 11.53								45. 17. 27.56		α Cygni.
60,48	66. 7. 38.57	29,878	46.4	46.6	2. 11.77	7.92			104. 13. 3.90		⊙.
	66. 39. 59.96				2. 15.13	7.95		16. 13.20	104. 13. 2.22		⊙.
	30. 33. 43.89	29,850	45.5	44.7	34.73				68. 21. 26.90	+ 11.20	α Tauri.
	26. 14. 3.10								63. 19. 33.08		β.
	26. 14. 3.26								63. 19. 33.24		β.
	26. 14. 3.19				28.99	25. 58.40		16. 8.89	63. 19. 33.17		β.
	26. 14. 2.93								63. 19. 32.91		β.
	26. 14. 2.49								63. 19. 32.47		β.
	19. 17. 54.83			44.4	20.61				57. 5. 23.72	+ 14.25	α Aurigæ.
	30. 50. 46.99				35.15				68. 38. 50.42	+ 10.26	α Tauri.
59,57	- 16. 43. 7.77	29,800	44.7	43.8	17.67				21. 3. 42.84	+ 9.12	55 Camelopard. R.
	- 16. 43. 7.29								21. 3. 43.32		55 Camelopard.
59,57	- 66. 31. 53.52	29,770	44.4	44.0	2. 14.52				- 28. 46. 59.76	- 8.77	η Cephei SP. R.
	- 66. 31. 54.86								- 28. 47. 1.10		η Cephei SP.
60,03	4. 25. 44.42				4.55				42. 12. 57.25	+ 0.09	α Ursæ Maj. R.
	4. 25. 44.03								42. 12. 56.86		α Ursæ Majoris.
59,27	73. 45. 53.83	29,826	46.4	46.8	3. 18.31	7.50	10,832	7.41	111. 36. 5.51		Venus.
	19. 17. 55.04	29,610	44.8	43.8	20.47				57. 5. 23.79	+ 14.27	α Aurigæ.
	30. 50. 47.01				34.91				68. 38. 30.20	+ 10.25	α Tauri.
	6. 22. 40.37				6.54				44. 10. 4.19	+ 17.65	Capella R.
	6. 22. 47.43								44. 10. 2.25		Capella.
	23. 44. 18.78			43.5	25.73				61. 31. 52.79	+ 11.93	β Tauri R.
	23. 44. 17.02								61. 31. 51.03		β Tauri.
	24. 36. 17.10								61. 43. 16.56		β.
	24. 36. 17.01								61. 43. 16.47		β.
	24. 36. 16.77				26.79	24. 26.93		16. 8.68	61. 43. 16.23		β.
59,68	24. 36. 16.76								61. 43. 16.22		β.
	24. 36. 16.23								61. 43. 15.69		β.
	24. 38. 10.18			43.1	26.85				62. 25. 45.31	+ 10.58	γ Tauri.
	- 70. 50. 47.17				2. 46.99				- 33. 6. 25.88	- 25.37	ξ Draco. SP. R.
	- 70. 50. 48.29								- 33. 6. 27.00		ξ Draconis SP.
	22. 39. 16.38				24.44				60. 26. 49.10	+ 10.13	α Aurigæ.
	- 41. 11. 9.73	29,622	43.8	42.5	51.28				- 3. 24. 52.73	- 22.00	δ U. Min. SP. R.
	- 41. 11. 8.79								- 3. 24. 51.79		δ Ursæ Min. SP.
	73. 42. 24.49	29,744	43.0	42.2	3. 18.94	7.45	10,928	8.30	111. 32. 35.96		Venus.
	7. 30. 13.09	29,768	44.9	45.0	7.72				45. 17. 29.09	- 10.89	α Cygni R.
59,69	7. 30. 11.99								45. 17. 27.99		α Cygni.
	70. 21. 19.94		45.6	45.9	2. 42.48	5.80			108. 11. 4.90		Mercury.
	63. 28. 3.57	29,770	46.0	46.7	2. 7.32	7.88			103. 33. 24.09		⊙.
	66. 0. 25.81				2. 10.53	7.91		16. 12.80	103. 33. 23.91		⊙.
	29. 29. 59.63	29,774	47.3	47.1	33.03				67. 17. 40.94	+ 9.83	α Arietis R.
	29. 29. 57.33								67. 17. 38.64		α Arietis.
	28. 13. 19.96		46.7	46.3	31.43				66. 2. 59.67	+ 11.05	A.S.C. 271
	3. 30. 40.76				3.74				41. 26. 52.78	+ 19.27	θ Persei R.
	3. 39. 59.11								41. 26. 51.13		θ Persei.
	66. 45. 2.27				2. 15.08				104. 32. 25.63	- 1.42	α Ceti R.
59,92	66. 42. 59.86								104. 32. 23.22		α Ceti.
	48. 44. 12.30				1. 6.37				86. 32. 27.21	+ 4.50	α Ceti R.
	48. 44. 11.08								86. 32. 25.93		α Ceti.
	11. 52. 19.47				12.50				49. 39. 40.05	+ 17.27	β Persei R.
	11. 52. 18.92								49. 39. 38.60		β Persei.
	62. 11. 15.86	29,784	46.0	45.4	1. 50.67				100. 0. 14.81	+ 0.32	ε Eridani R.
	62. 11. 14.23				2. 41.14				100. 0. 13.18		ε Eridani.
	70. 10. 14.23								108. 0. 3.65	- 2.05	F Eridani.
	30. 53. 43.44			44.4	34.68				68. 21. 26.39	+ 11.14	α Tauri.

Coincidence of Micrometer Wire with fixed Wire = 10', 115, 10', 122, 10', 123, 10', 129, 10', 133 at the five wires. From Feb. 13 = 10', 115, 10', 124, 10', 127, 10', 131, 10', 140

One Micrometer Revolution = 20", 86/100

Correction for Hum. = + 6", 5. From Feb. 12 = + 3", 8

Adopted Zenith Point = 112° 46' 0", 24. From Feb. 13 = 112° 46' 0", 12

Assumed Co-latitude = 57° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Mierom. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Feb. 13	(a) N.L. M.....	137.10	4.44,1	37,2	44,0	42,8	47,8	45,2	8,044	+43,22	-2	+2,30	137.15.29,64	G.
	N.L. M.....	...	...	...	...	...	...	...	7,995	+44,44	-1	+1,15	137.15.29,71	G.
	N.L. M.....	137.10	4.46,0	38,0	46,0	42,6	49,2	45,9	8,020	+44,06	+1	-1,15	137.15.28,13	G.
	N.L. M.....	...	...	...	...	...	...	...	7,957	+45,56	+2	-2,30	137.15.28,48	G.
	Geminor. R. M.	271.0	2.26,9	21,9	24,7	24,8	28,2	26,4	6,518	+1.15,31			271.3.41,09	G.
	Geminorum.....	134.25	3.18,3	11,8	16,9	14,8	19,0	17,3					134.28.16,77	G.
	Geminorum.....	142.40	1.57,3	53,3	57,8	54,8	59,1	57,6					142.41.56,90	G.
	Venus N.L.....	186.20	3.63,0	54,8	60,9	60,0	62,9	62,7					186.24.1,22	G.
	Mercury, center...	182.35	2.25,6	22,1	24,4	25,7	28,0	27,0					182.37.25,77	G.
Feb. 14	S.L. M.....	178.25	1.21,2	18,2	20,1	20,2	23,5	20,2	10,330	-4,23			178.26.16,50	G.
	N.L.....	177.50	3.53,5	47,9	53,5	52,2	56,6	52,8					177.53.53,25	G.
	Polaris R. M.....	329.0	0.29,3	25,4	24,6	27,5	28,9	27,1	10,873	-15,57			329.0.11,63	G.
	Polaris.....	76.30	1.52,2	46,3	49,8	48,9	50,8	49,8					76.31.49,87	G.
	Cassiopeie R. M.	299.55	2.18,8	11,9	15,4	16,5	15,9	16,0	9,829	+6,22			299.57.22,25	G.
	Cassiopeie.....	105.30	4.38,8	28,9	37,1	36,1	39,0	35,2					105.34.36,43	G.
	Arietis R. M....	263.10	4.45,4	37,5	44,0	43,3	44,2	44,8	6,455	+1.16,62			263.16.0,42	G.
	Arietis.....	142.15	0.57,9	55,4	58,0	57,0	61,0	55,8					142.15.57,63	G.
	Geminor. R. M.	271.0	2.24,2	21,8	23,9	25,2	27,3	26,8	6,482	+1.16,14	+1	-0,09	271.3.41,22	G.
	Geminorum.....	134.25	3.18,8	12,0	17,4	14,4	19,3	17,3			+2	+0,36	134.28.17,31	G.
	Geminorum.....	142.40	1.56,8	52,1	57,6	54,6	58,8	56,5					142.41.56,30	G.
	N.L. M.....	139.40	0.18,0	15,3	16,4	15,3	19,0	17,0	8,654	+30,49	-2	+5,00	139.40.52,36	G.
	N.L. M.....	...	...	...	...	...	...	...	8,495	+34,00	-1	+2,50	139.40.53,37	G.
	N.L. M.....	...	...	...	...	...	...	...	8,376	+36,54			139.40.53,41	G.
	N.L. M.....	...	...	...	...	...	...	...	8,248	+39,29	+1	-2,50	139.40.53,66	G.
	N.L. M.....	...	...	...	...	...	...	...	8,163	+41,26	+2	-5,00	139.40.53,13	G.
	Canceri.....	136.40	4.9,3	1,0	9,8	5,5	9,2	9,0					136.44.7,82	G.
Feb. 17	Leonis.....	151.45	0.50,1	48,0	51,1	49,8	54,0	51,0					151.45.50,77	G.
	(b) Regulus R. M....	253.15	2.33,1	28,2	30,6	31,2	34,8	34,0	7,088	+1.3,49	+1	-0,04	253.18.35,75	G.
	Regulus.....	152.10	3.20,9	14,8	21,5	18,8	23,2	21,9			+2	+0,14	152.13.20,74	G.
	Ursae Maj. R. M.	284.15	2.18,7	15,1	18,0	18,0	18,3	19,5	14,430	-1.29,79			284.15.48,44	G.
	Ursae Majoris...	121.15	1.12,0	8,8	10,0	11,0	12,7	10,1					121.16.10,92	G.
	(c) S.L.....	155.35	1.12,1	9,0	12,9	10,4	15,9	12,0			-2	+8,62	155.36.20,82	G.
	S.L. M.....	...	...	...	...	...	...	...	9,978	+3,05	-1	+4,31	155.36.19,56	G.
	S.L. M.....	...	...	...	...	...	...	...	9,807	+6,68			155.36.18,88	G.
	S.L. M.....	...	...	...	...	...	...	...	9,581	+11,47	+1	-4,31	155.36.19,36	G.
	S.L. M.....	...	...	...	...	...	...	...	9,363	+16,22	+2	-8,62	155.36.19,80	G.
	Leonis.....	153.30	4.44,0	35,9	45,1	41,2	47,4	44,8					153.34.43,67	G.
	Ursae Maj. R. M.	303.5	4.41,0	34,0	40,7	39,1	43,1	41,6	10,440	-6,53			303.9.33,97	G.
	Ursae Majoris...	102.20	2.29,0	23,1	26,1	26,4	30,1	27,9					102.22.27,40	G.
	Leonis.....	156.45	1.5,0	2,5	4,7	3,1	8,3	5,3					156.46.4,95	G.
	(d) Venus N.L.....	186.0	1.39,8	36,0	37,0	39,8	39,4	39,7					186.1.38,82	G.
Feb. 23	Aquilae R. M....	248.55	4.43,2	39,3	46,8	44,9	47,7	49,5	6,826	+1.8,88			249.0.55,01	G.
	Aquilae.....	156.30	1.0,5	2,8	5,8	3,9	6,5	5,0					156.31.4,28	G.
	Venus N.L.....	185.5	4.46,3	43,2	49,9	49,0	52,4	52,2					185.9.49,75	G.
	(e) a Cygni R. M....	285.15	1.27,7	29,0	32,1	31,0	29,2	33,0	12,350	-46,31	+1	-0,15	285.15.44,16	G.
	Cygni.....	120.15	1.13,0	12,1	15,4	13,0	16,2	13,2			+2	+0,59	120.16.14,64	G.
	Cephei R. M....	302.25	1.15,2	15,5	17,8	17,4	19,9	17,9	7,009	+1.5,07			302.27.22,60	G.
	Cephei.....	103.0	4.36,1	30,9	38,8	36,3	40,8	37,1					103.4.37,53	G.
Feb. 24	(f) S.L. M.....	174.50	4.17,1	8,9	20,2	17,4	24,8	20,2	10,510	-7,99			174.54.10,93	G.
	N.L.....	174.20	1.52,0	48,8	56,0	54,8	59,8	55,0					174.21.54,77	G.
	Aquilae R. M....	249.0	1.27,8	24,4	28,4	29,0	31,5	32,1	11,808	-35,08			249.0.54,07	G.
	Aquilae.....	156.30	1.0,8	1,3	4,5	3,5	7,1	4,8					156.31.3,87	G.
	(d) Venus N.L.....	184.55	4.5,5	1,3	8,1	7,1	12,5	10,4					184.59.8,27	G.
Feb. 25	N.L. M.....	173.55	4.17,1	10,0	21,3	18,9	26,7	22,4	8,955	+24,46			173.59.44,68	G.
	S.L.....	174.30	1.58,3	56,2	62,3	61,2	67,0	62,8					174.32.1,68	G.
	Cancri R. M....	250.10	3.34,0	28,2	36,1	34,0	40,8	39,7	7,690	+50,87			250.14.27,02	G.
	Cancri.....	155.15	2.28,1	25,1	30,5	29,1	34,9	33,9					155.17.30,73	G.

Runs taken Feb. 23, 25<sup>h</sup>. (Temp. 35°.)

- (a) The middle wire was lost by turning to the other limb, which was found to be not sufficiently full for observation.  
 (b) A bad blur.  
 (c) Often cloudy.

- (d) Unsteady.  
 (e) Indistinct.  
 (f) Before this observation Microscope B was struck by the lower part of the shade, the stage, to which this part is attached, having been displaced.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
58,93	24.29.29,52	29,792	42,8	41,1					62. 8. 53,99		γ.
	24.29.29,59								62. 8. 51,06		γ.
	24.29.28,01				26,95	24. 17,46		16. 6,70	62. 8. 52,48		γ.
	24.29.28,36								62. 8. 52,83		γ.
	21.42.19,03		42,2	40,0					59.29.50,91	+ 7,13	τ Geminorum R.
	21.42.16,65				23,60				59.29.48,53		τ Geminorum.
	29.55.56,78				34,13				67.43.39,19	+ 4,60	δ Geminorum.
	73.58. 1,10	29,864	40,4	37,7	3.20,74	7,40	9,360	8,02	111.28.30,74		Venus.
60,73	69.51.25,65	29,870	43,0	44,1	2.39,34	5,78			107.41. 7,49		Mercury.
	65.40.16,58	29,874	43,4	45,0	2. 9,42	7,89			103.13.13,49		⊙.
	65. 7.53,13				2. 6,27	7,85		16.12,70	103.13.12,53		⊙.
	-36.14.11,51	29,850	45,2	46,8					1.32.13,86	+ 22,76	Polaris R.
	-36.14.10,25				42,91				1.32.15,12		Polaris.
	-7.11.22,13								30.35.38,76	+ 18,26	ε Cassiopeie R.
	-7.11.23,69				7,39				30.35.37,20		ε Cassiopeie.
	29.29.59,70			46,5					67.17.41,14	+ 9,74	α Arietis R.
59,03	29.29.57,51				33,16				67.17.38,95		α Arietis.
	21.42.18,90	29,848	40,7	37,8					59.29.50,94	+ 7,18	τ Geminorum R.
	21.42.17,19				23,76				59.29.49,23		τ Geminorum.
	29.55.56,18				34,35				67.43.38,81	+ 4,63	δ Geminorum.
	26.54.52,24	29,840	40,5	38,8					64.32. 7,53		γ.
	26.54.53,25								64.32. 8,54		γ.
	26.54.53,29				30,22	26.25,75		16. 2,54	64.32. 8,58		γ.
	26.54.53,54								64.32. 8,83		γ.
58,25	26.54.53,01								64.32. 8,30		γ.
	23.58. 7,70				26,47				61.45.42,45	+ 2,97	β Cancri.
	38.59.50,65	30,128	43,8	42,8	48,24				76.47.47,17	- 6,85	ε Leonis.
	39.27.24,37			41,7					77.15.21,79	- 7,54	Regulus R.
	39.27.20,62				49,14				77.15.18,04		Regulus.
	8.30.11,68				8,94				46.17.28,90	- 7,12	α Ursæ Maj. R.
	8.30.10,80								46.17.28,02		α Ursæ Majoris.
	42.50.20,70			40,7					79.43.59,48		γ.
60,68	42.50.19,44								79.43.58,22		γ.
	42.50.18,76				55,47	38.47,32		15.37,65	79.43.57,54		γ.
	42.50.19,24								79.43.58,02		γ.
	42.50.19,68								79.43.58,16		γ.
	40.48.45,55				51,66				78.36.43,49	- 10,03	δ Leonis.
	-10.23.33,85				10,98				27.23.23,45	- 11,16	α Ursæ Maj. R.
	-10.23.32,72				57,76				27.23.21,58		α Ursæ Majoris.
	44. 0. 4,93								81.48.10,87	- 10,76	γ Leonis.
59,65	73.15.38,70	30,210	41,2	39,6	3.17,59	7,21	9,462	6,96	111. 6. 4,32		Venus.
	43.45. 5,11	30,350	32,8	31,5					81.33.12,20	- 14,26	α Aquilæ R.
	43.45. 4,16				58,81				81.33.11,25		α Aquilæ.
	72.23.49,63				3.11,72	6,94	9,454	7,06	110.14. 9,75		Venus.
	7.30.15,96	30,358	33,8	33,3					45.17.32,41	- 13,66	α Cygni R.
	7.30.14,52				8,07				45.17.30,87		α Cygni.
	-9.41.22,48	30,370	34,6	34,8					28. 5.35,37	- 8,85	α Cephei R.
	-9.41.22,59				10,43				28. 5.35,26		α Cephei.
58,97	62. 8.10,81	30,366	35,5	37,6	1.54,43	7,63			99.40.55,39		⊙.
	61.35.54,65				1.51,89	7,60		16.10,50	99.40.57,72		⊙.
	43.45. 6,05	30,554	34,0	33,6					81.33.13,27	14,34	α Aquilæ R.
	43.45. 3,75				58,94				81.33.10,97		α Aquilæ.
	72.13. 8,15			34,2	3. 9,85	6,89	9,460	7,00	110. 5.26,39		Venus.
	61.15.44,56	30,558	37,0	39,4	1.50,48	7,56			99.18.45,96		γ.
	61.46. 1,56				1.52,96	7,61			99.18.44,99		γ.
	42.31.33,10	30,566	33,0	30,7					80.19.38,22	1,43	β Cancri R.
58,88	42.31.30,61				56,84				80.19.35,73		β Cancri.

Coincidence of Micrometer Wire with fixed Wire - 10', 115, 107, 124 10', 127, 107, 131, 107, 140 at the five wires.

One Micrometer Revolution - 20", 608.

Correction for Run - + 3", 8 From Feb. 23 - + 5", 7

Adopted Zenith Point - 112°. 46' 0", 12

Assumed Co-latitude - 37° 47' 30", 24.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Readings.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  " "	Correction to Middle Wire.  " "	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F					"	"	"	
			" "	" "	" "	" "	" "	" "					"	"	"	
Feb. 26	$\alpha$ Aquilæ R. M....	249. 0	0. 38,1	37,0	39,8	40,9	42,3	43,0	9,398	+ 15,22			249. 0. 55,52			G.
	$\alpha$ Aquilæ.....	156. 30	1. 1,2	0,4	5,0	3,8	6,0	5,9					156. 31. 3,90			G.
	Venus N.L.....	184. 35	0. 57,8	56,2	60,6	60,3	62,4	62,7					184. 36. 0,18			G.
Feb. 27	$\odot$ N.L. M.....	173. 15	1. 17,9	16,6	20,9	20,1	24,1	21,5	13,595	- 1. 12,37			173. 15. 8,06			G.
	$\odot$ S.L.....	173. 45	2. 20,8	17,0	23,6	22,8	26,1	24,7					173. 47. 22,95			G.
Feb. 28	$\odot$ S.L. M.....	173. 25	0. 29,9	27,3	27,8	28,0	33,4	29,4	11,792	- 34,74			173. 24. 54,66			G.
	$\odot$ N.L.....	172. 50	2. 37,9	33,2	38,0	36,9	42,1	38,1					172. 52. 38,20			G.
	Venus N.L.....	184. 10	0. 40,0	38,8	58,6	39,4	42,1	41,0					184. 10. 40,10			G.
	(a) $\alpha$ Cygni R. M....	285. 15	1. 28,9	24,1	27,5	27,2	28,8	28,0	12,263	- 44,50	+1	- 0,15	285. 15. 43,05			G.
	$\alpha$ Cygni.....	120. 15	1. 18,5	12,4	15,0	14,1	16,5	15,5			+2	+ 0,59	120. 16. 16,17			G.
	(a) $\alpha$ Cephei R. M....	302. 25	2. 26,7	20,8	23,8	24,0	26,4	25,5	10,311	- 3,84			302. 27. 21,14			G.
	$\alpha$ Cephei.....	103. 0	4. 41,5	30,7	37,9	36,9	40,9	38,0					103. 4. 38,52			G.
Feb. 29	$\odot$ N.L. M.....	172. 25	4. 41,2	33,0	40,7	38,3	45,8	41,1	9,253	+ 18,40			172. 29. 59,30			G.
	$\odot$ S.L.....	173. 0	2. 15,0	9,7	13,9	13,0	17,8	14,1					173. 2. 14,33			G.
	Mercury, center...	172. 15	4. 45,5	38,0	43,4	43,1	48,8	44,9					172. 19. 44,85			G.
Mar. 1	Venus N.L.....	183. 40	2. 62,8	56,3	62,2	60,4	64,8	62,8					183. 43. 2,27			G.
	$\alpha$ Cygni R. M....	285. 15	1. 24,1	19,9	22,0	22,0	23,9	22,9	12,048	- 39,92			285. 15. 42,85			G.
	$\alpha$ Cygni.....	120. 15	1. 19,9	14,2	16,4	15,5	18,1	15,5					120. 16. 16,90			G.
Mar. 2	$\odot$ S.L. M.....	172. 15	1. 21,8	18,0	20,1	18,3	24,2	20,2	9,274	+ 17,96			172. 16. 38,69			G.
	$\odot$ N.L.....	171. 40	4. 22,2	14,0	22,1	18,8	24,5	21,0					171. 44. 21,45			G.
	Mercury, center...	170. 35	0. 56,0	52,8	54,8	54,1	57,4	53,2					170. 35. 54,93			G.
	$\alpha$ Ceti R. M....	244. 0	0. 31,5	28,8	26,7	29,0	32,0	30,7	6,269	+ 1. 20,67			244. 1. 50,57			G.
	$\alpha$ Ceti.....	161. 30	0. 9,2	8,1	8,7	8,9	12,3	8,6					161. 30. 9,33			G.
	Venus N.L.....	183. 25	3. 28,2	20,8	25,8	24,9	30,8	27,6					183. 28. 27,17			G.
Mar. 3	Aldebaran R. M....	256. 40	3. 23,6	16,1	20,6	18,7	21,6	22,1	5,689	+ 1. 32,78			256. 44. 54,01			G.
	Aldebaran.....	148. 45	1. 66,4	59,2	64,8	60,2	64,4	63,1					148. 47. 3,50			G.
	$\epsilon$ Aurigæ R. M....	284. 5	2. 23,9	17,8	20,9	19,9	21,0	22,8	7,391	+ 57,26			284. 8. 18,86			G.
	$\epsilon$ Aurigæ.....	121. 20	3. 42,3	33,9	38,4	37,8	39,5	39,2					121. 23. 39,37			G.
	$\beta$ Eridani R. M....	235. 15	2. 25,8	19,4	20,8	20,2	24,2	24,8	11,800	- 34,74			235. 16. 48,34			G.
	$\beta$ Eridani.....	170. 15	0. 11,2	7,7	9,2	7,8	10,3	9,7					170. 15. 9,37			G.
	Rigel R. M....	252. 10	1. 22,3	18,1	18,0	19,0	20,2	21,3	9,934	+ 4,19			232. 11. 24,32			G.
	Rigel.....	173. 20	0. 35,0	30,4	32,4	32,0	35,2	34,1					173. 20. 33,30			G.
	$\alpha$ Cygni R. M....	285. 15	1. 24,8	20,0	22,0	21,9	23,9	24,4	12,080	- 40,58			285. 15. 42,59			G.
	$\alpha$ Cygni.....	120. 15	1. 20,6	14,5	17,0	16,0	18,9	16,9					120. 16. 17,62			G.
	Venus N.L.....	183. 10	3. 18,4	11,6	17,2	16,8	19,8	19,2					183. 13. 17,95			G.
Mar. 4	$\odot$ S.L. M.....	171. 30	0. 32,8	31,0	32,5	31,0	35,5	32,2	9,997	+ 2,89			171. 30. 35,51			G.
	$\odot$ N.L.....	170. 55	3. 19,9	14,1	19,0	17,8	21,2	20,2					170. 58. 19,48			G.
	Mercury, center...	168. 45	3. 40,9	35,0	39,2	39,0	44,1	41,2					168. 48. 40,77			G.
	Aldebaran R. M....	256. 40	3. 40,6	32,1	38,1	36,7	40,0	40,0	6,480	+ 1. 16,26			256. 44. 55,04			G.
	Aldebaran.....	148. 45	1. 66,2	59,2	67,0	61,5	66,9	64,7					148. 47. 4,75			G.
	$\epsilon$ Aurigæ R. M....	284. 5	2. 33,7	28,0	30,0	29,8	31,7	32,7	7,811	+ 48,50			284. 8. 20,08			G.
	$\epsilon$ Aurigæ.....	121. 20	3. 41,5	34,0	38,5	36,7	40,0	38,9					121. 23. 39,13			G.
	$\beta$ Eridani R. M....	235. 15	2. 16,0	11,8	12,8	11,3	14,8	15,3	11,341	- 25,17			235. 16. 49,01			G.
	$\beta$ Eridani.....	170. 15	0. 10,8	9,1	9,3	9,0	10,4	10,0					170. 15. 9,80			G.
	Rigel R. M....	232. 10	0. 38,0	35,9	34,7	35,8	37,3	38,8	7,793	+ 48,87			232. 11. 25,77			G.
	Rigel.....	173. 20	0. 34,5	31,3	33,3	32,1	35,0	35,3					173. 20. 33,72			G.
	Venus N.L.....	182. 55	2. 38,7	33,0	37,8	37,1	40,1	39,8					182. 57. 38,37			G.
Mar. 5	$\odot$ N.L. M.....	170. 30	4. 18,4	10,1	18,7	16,9	21,2	18,4	7,503	+ 54,93			170. 35. 13,23			G.
	$\odot$ S.L.....	171. 5	2. 26,4	21,0	25,5	24,6	28,3	25,6					171. 7. 25,80			G.
	Mercury, center...	167. 50	3. 65,3	59,0	64,1	62,8	67,8	64,0					167. 54. 4,78			G.
	$\alpha$ Aquilæ R. M....	248. 55	4. 23,9	14,0	20,8	19,2	22,7	24,2	5,664	+ 1. 33,30			249. 0. 55,13			G.
	$\alpha$ Aquilæ.....	156. 30	1. 6,8	2,2	5,7	4,2	6,8	6,9					156. 31. 5,70			G.
	$\alpha$ Cygni R. M....	285. 15	1. 11,8	8,0	12,0	9,8	11,1	11,5	11,438	- 27,19			285. 15. 43,79			G.
	$\alpha$ Cygni.....	120. 15	1. 21,0	14,9	18,0	14,5	18,8	17,6					120. 16. 17,77			G.

Coincidence at the middle wire and Runs taken March 5, 23°. (Temp. 40°.)

(a) These reflexion observations were not satisfactory.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
59,71	43.45. 4,60	30,426	32,8	31,7	58,93				81.33.11,81	- 14,50	$\alpha$ Aquilæ R.
	43.45. 3,78								81.33.10,99		$\alpha$ Aquilæ.
	71.50. 0,06			33,1	3. 5,29	6,80	9,448	7,14	109.40.13,97		Venus.
	60.29. 7,94	30,400	36,5	37,1	1.47,15	7,51		16. 9,70	98.34. 5,56	$\odot$ .	
	61. 1.22,83				1.49,51	7,55			98.34. 3,37		$\odot$ .
	60.38. 54,54	30,250	38,4	39,6	1.46,77	7,52		16. 9,50	98.11.32,57	$\odot$ .	
	60. 6.38,08				1.44,47	7,48			98.11.32,85		$\odot$ .
	71.24.39,98	30,326	37,1	36,9	2.58,81	6,71	9,500	6,60	109.14.46,96		Venus.
59,61	7.30.17,07				8,00				45.17.33,35	- 14,81	$\alpha$ Cygni R.
	7.30.16,05								45.17.32,33		$\alpha$ Cygni.
	-9.41.21,02	30,544	38,6	38,8	10,34				28. 5.36,92		$\alpha$ Cephei R.
59,83	-9.41.21,60								28. 5.36,34	- 10,30	$\alpha$ Cephei.
	59.43.59,18	30,338	40,0	41,2	1.42,86	7,45		16. 9,20	97.48.52,07	$\odot$ .	
	60.16.14,21				1.45,10	7,49			97.48.50,90		$\odot$ .
	59.53.44,73			41,4	1.42,12	5,53			97.22.29,60		Mercury.
59,88	70.57. 2,15	30,424	35,3	36,0	2.55,17	6,63	9,409	7,65	108.47. 6,62	- 15,27	Venus.
	7.30.17,27				8,04				45.17.33,59		$\alpha$ Cygni R.
	7.30.16,78								45.17.33,10		$\alpha$ Cygni.
	59.30.38,57	30,422	40,0	41,1	1.42,26	7,43		16. 8,80	97. 3.12,88	$\odot$ .	
	58.58.21,33				1.40,11	7,38			97. 3.11,14		$\odot$ .
	57.49.54,81			42,0	1.55,59	5,52			95.38.33,16		Mercury.
59,95	48.44. 9,55	30,416	41,3	41,0	1. 8,75				86.32.26,58	+ 4,01	$\alpha$ Ceti R.
	48.44. 9,21								86.32.26,24		$\alpha$ Ceti.
	70.42.27,05	30,384	38,8	40,0	2.51,14	6,58	9,480	6,90	108.32.26,79		Venus.
58,76	36. 1. 6,11	30,350	41,8	40,5	43,85				73.48.58,24	+ 8,46	Aldebaran R.
	36. 1. 3,38								73.48.55,51		Aldebaran.
	8.37.41,26			39,4	9,18				46.24.58,72		$\epsilon$ Aurigæ R.
59,12	8.37.39,25								46.24.56,71	+ 17,72	$\epsilon$ Aurigæ.
	57.29.11,78				1.54,62				95.17.54,68		$\beta$ Eridani R.
	57.29. 9,25								95.17.52,15		$\beta$ Eridani.
58,86	60.34.35,80				1.46,85				98.23.30,93	- 0,32	Rigel R.
	60.34.33,18								98.23.28,31		Rigel.
	7.30.17,53	30,378	36,6	36,3	8,03				45.17.33,84		$\alpha$ Cygni R.
60,11	7.30.17,50								45.17.33,81	- 15,65	$\alpha$ Cygni.
	70.27.17,83				2.50,09	6,54	9,465	7,06	108.17.16,72		Venus.
	58.44.33,39	30,376	39,0	39,5	1.39,39	7,36		16. 8,20	96.17. 7,50	$\odot$ .	
	58.12.19,36				1.37,34	7,32			96.17. 5,86		$\odot$ .
	56. 2.40,65			40,5	1.29,46	5,52			93.51.12,87		Mercury.
59,90	36. 1. 5,08	30,338	38,5	37,7	44,08				73.48.57,44	+ 8,45	Aldebaran R.
	36. 1. 4,63								73.48.56,99		Aldebaran.
	8.37.40,04			37,2	9,22				46.24.57,54		$\epsilon$ Aurigæ R.
59,61	8.37.39,01								46.24.56,51	+ 17,72	$\epsilon$ Aurigæ.
	57.29.11,11				1.55,02				95.17.54,41		$\beta$ Eridani R.
	57.29. 9,68								95.17.52,98		$\beta$ Eridani.
59,41	60.34.34,55				1.47,30				98.23.29,93	- 0,33	Rigel R.
	60.34.33,60								98.23.29,18		Rigel.
	70.11.38,25	30,354	35,8	36,3	2.47,61	6,49	9,513	6,57	108. 1.34,22		Venus.
	57.49.13,11	30,356	38,4	41,5	1.35,44	7,29		16. 8,00	95.53.57,54	$\odot$ .	
	58.21.25,68				1.37,44	7,33			95.53.56,07		$\odot$ .
	55. 8. 6,66	30,338	38,8	43,3	1.25,87	5,53			92.56.33,28		Mercury.
60,42	43.45. 4,90	30,370	34,8	32,0	58,78				81.33.12,05	- 15,02	$\alpha$ Aquilæ R.
	43.45. 5,58								81.33.12,64		$\alpha$ Aquilæ.
	7.30.16,33	30,382	35,4	34,6	8,06				45.17.32,67		$\alpha$ Cygni R.
60,78	7.30.17,65								45.17.33,99	- 16,03	$\alpha$ Cygni.

Coincidence of Micrometer Wire with fixed Wire = 10', 127 at the middle wire. From Feb. 29 = 10', 135.

One Micrometer Revolution = 20", 868.

Correction for Run = + 5", 7. From March 1 = + 7", 1.

Adopted Zenith Point = 112'. 46" 0", 12.

Assumed Co-latitude = 57°. 47'. 8", 28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Mar. 5	Venus N.L. ....	182.40	1.25,1	19,9	23,2	22,2	27,1	25,5					182.41.24,17	G.
Mar. 6	☉ S.L. M. ....	170.40	4.11,7	4,2	10,8	9,3	13,8	11,8	9,980	+3,23			170.44.14,50	G.
	☉ N.L. ....	170.10	1.58,8	54,0	58,3	58,1	59,4	58,8					170.11.58,37	G.
	Mercury, center..	166.55	3.64,0	59,3	64,0	63,8	67,4	64,8					166.59.4,83	G.
	Polaris R. M. ....	329.0	0.30,2	23,3	26,0	25,9	29,0	28,8	11,151	-21,21			329.0.6,09	G.
	Polaris. ....	76.30	1.57,8	50,6	56,8	52,4	59,8	53,8					76.31.55,65	G.
	Venus N.L. ....	182.20	4.43,0	33,7	42,7	39,8	45,4	43,8					182.24.42,50	G.
	α Cephei R. M. ....	302.25	2.29,3	22,1	26,8	25,3	27,8	27,5	10,466	-6,91			302.27.20,12	G.
	α Cephei. ....	103.0	4.44,0	33,3	42,1	39,3	44,1	40,8					103.4.41,72	G.
Mar. 7	☉ N.L. M. ....	169.45	4.20,6	13,1	19,4	19,0	23,9	21,7	12,050	-39,96			169.48.40,67	G.
	☉ S.L. ....	170.20	0.52,0	50,0	51,9	52,5	54,9	52,7					170.20.52,53	G.
	Mercury, center..	166.0	3.47,0	42,9	46,9	47,0	51,8	47,5					166.3.48,08	G.
	Polaris R. M. ....	329.0	1.27,3	18,6	22,3	22,7	25,0	25,1	13,869	-1.17,92			329.0.5,91	G.
	Polaris. ....	76.30	1.60,4	53,0	58,8	54,9	61,0	56,0					76.31.57,82	G.
	α Cephei SP. R. M.	358.35	2.15,5	8,7	14,1	13,9	15,2	15,4	12,277	-44,70			358.36.29,63	G.
	α Cephei SP. ....	46.55	0.33,0	27,4	29,3	28,9	30,3	31,9					46.55.30,25	G.
	α Hydrae R. M. ....	232.35	0.36,4	33,1	33,1	34,9	35,9	36,8	7,008	+1.5,26			232.36.40,43	G.
	α Hydrae. ....	172.55	0.18,8	15,0	17,2	17,2	20,0	18,4					172.55.17,83	G.
Mar. 8	☉ S.L. M. ....	143.50	2.63,8	59,2	63,8	61,2	67,0	63,1	9,350	+16,28			143.53.19,68	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	9,570	+11,68	+1	+3,47	143.53.18,55	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	9,747	+8,18	+2	+6,94	143.53.18,52	G.
Mar. 9	☉ S.L. M. ....	139.50	1.29,7	23,2	25,9	25,0	31,1	26,4	9,067	+22,01	-2	-4,68	139.51.44,40	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	9,160	+20,16	-1	-2,34	139.51.44,89	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	9,267	-18,00			139.51.45,07	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	9,420	+14,82	+1	+2,34	139.51.44,23	G.
	☉ S.L. M. ....	...	...	...	...	...	...	...	9,534	+12,62	+2	+4,68	139.51.44,37	G.
	α Cygni R. M. ....	285.15	1.30,3	24,9	27,3	28,3	27,0	29,2	12,351	-46,25			285.15.41,77	G.
	α Cygni. ....	120.15	1.22,8	15,8	18,1	18,2	18,8	18,0					120.16.18,78	G.
	Venus N.L. ....	181.30	1.44,9	39,8	43,0	43,8	45,4	45,0					181.31.43,87	G.
	(a) α Cephei R. M. ....	302.25	2.41,5	32,9	37,7	39,0	38,2	38,9	11,050	-19,09			302.27.19,28	G.
	α Cephei. ....	103.0	4.44,0	33,8	41,7	40,8	43,2	40,4					103.4.41,27	G.
Mar. 10	☉ S.L. M. ....	169.5	4.25,0	18,4	23,4	23,0	29,3	24,1	6,606	+1.13,64			169.10.38,07	G.
	☉ N.L. ....	168.35	3.27,9	20,8	25,8	26,2	31,8	27,7					168.38.27,15	G.
	Mercury, center..	163.15	3.42,6	36,2	40,9	42,0	45,2	42,0					163.18.41,97	G.
Mar. 13	(b) ☉ N.L. M. ....	167.25	2.21,3	15,3	18,0	18,5	21,8	19,3	8,804	+27,61			167.27.46,94	G.
	(c) ☉ S.L. ....	167.55	4.59,1	55,1	55,4	55,2	60,9	55,7					167.59.56,90	G.
	(c) Mercury, center..	160.35	4.58,0	56,2	54,1	55,8	58,3	54,9					160.39.56,22	G.
	Castor R. M. ....	272.45	1.34,2	27,8	28,8	28,1	30,1	30,9	7,038	+1.4,46			272.47.34,64	G.
	Castor. ....	132.40	4.28,8	17,2	23,4	22,4	25,1	25,3					132.44.24,27	G.
	Procyon R. M. ....	246.16	3.18,2	8,0	12,8	13,0	14,8	15,6	13,765	-1.15,92			246.11.58,23	G.
	Procyon. ....	159.20	0.4,1	0,0	0,9	0,6	1,1	0,6					159.20.1,22	G.
	Pollux R. M. ....	268.55	1.20,0	13,9	15,4	15,1	16,4	17,2	4,938	+1.48,29			268.58.4,79	G.
	Pollux. ....	136.30	3.59,0	48,2	55,1	52,8	57,4	55,8					136.33.55,22	G.
	φ Geminorum. ....	137.45	2.56,1	47,7	52,8	50,3	55,0	52,8					137.47.52,83	G.
	(d) ☉ N.L. M. ....	142.10	0.13,4	6,4	9,2	7,3	11,8	9,0	9,203	+19,12	-2	+6,20	142.10.34,87	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	9,078	+21,83	-1	+3,10	142.10.34,48	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	8,917	+25,25			142.10.34,80	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	8,764	+28,44	+1	-3,10	142.10.34,80	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	8,655	+50,91	+2	-6,20	142.10.34,26	G.
	♂ Capric. ....	146.10	3.61,0	49,3	57,4	54,1	58,7	58,2					146.13.56,95	G.
Mar. 16	Mercury, center..	158.15	0.4,0	0,0	1,1	2,1	2,8	1,0					158.15.1,83	G.
Mar. 19	☉ N.L. M. ....	165.5	0.19,0	15,1	17,0	15,0	18,5	16,4	8,453	+34,93			165.5.51,80	G.
	☉ S.L. ....	165.35	2.61,0	52,8	60,0	56,4	61,0	58,8					165.37.58,72	G.

Coincidences at the five wires and Runs taken March 19, 1<sup>h</sup>. (Temp. 45°.)

(a) Very faint.

(b) The Limbs were seen with difficulty on account of mist.

(c) No correction for runs.

(d) Excellent.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	inch.	"	"	" "	" "	"	" "	" " "	"	"
	69. 55. 24.05	30,382	35.4	35.4	2. 45.65	6.45	9.497	6.74	107. 45. 18.27		Venus.
	57. 58. 14.38	30,384	38.4	42.8	1. 35.82	7.30		16. 7.80	95. 30. 43.38		☉.
	57. 25. 58.25				1. 33.86	7.25			95. 30. 40.94		☉.
	54. 13. 4.71		39.2	45.3	1. 22.81	5.54			92. 1. 30.26		Mercury.
60.87	- 36. 14. 5.97	30,374	39.7	46.3	43.70				1. 32. 18.61	+ 18.06	Polaris R.
	- 36. 14. 4.47								1. 32. 20.11		Polaris.
	69. 38. 42.38	30,518	37.2	37.5	2. 43.22	6.41	9.500	6.71	107. 28. 34.18		Venus.
60.92	- 9. 41. 20.00			38.5	10.40				28. 5. 37.88	- 12.18	α Cephei R.
	- 9. 41. 18.40								28. 5. 39.48		α Cephei.
	57. 2. 40.55	30,520	39.4	44.5	1. 32.56	7.22		16. 7.50	95. 7. 21.67		☉.
	57. 54. 52.41				1. 34.48	7.26			95. 7. 20.41		☉.
	53. 17. 47.96			45.8	1. 20.34	5.56			91. 6. 11.02		Mercury.
61.87	- 36. 14. 5.79	30,514	40.7	45.4	43.99				1. 32. 18.50	+ 17.76	Polaris R.
	- 36. 14. 2.30								1. 32. 21.99		Polaris.
59.94	- 65. 50. 29.51	30,562	37.4	34.8	2. 16.32				- 28. 5. 37.55	- 12.31	α Cephei SP. R.
	- 65. 50. 29.87								- 28. 5. 37.91		α Cephei SP.
59.13	60. 9. 19.69				1. 46.80				97. 58. 14.77	- 8.31	α Hydrae R.
	60. 9. 17.71								97. 58. 12.79		α Hydrae.
	31. 7. 19.56	30,568	46.6	48.2				16. 12.32	68. 8. 20.62		☉.
	31. 7. 18.43				36.11	30. 31.01			68. 8. 19.49		☉.
	31. 7. 18.40								68. 8. 19.46		☉.
	27. 5. 44.28	30,510	42.2	43.0				16. 10.15	64. 10. 24.94		☉.
	27. 5. 44.77								64. 10. 25.43		☉.
	27. 5. 44.95				30.87	26. 48.34			64. 10. 25.61		☉.
	27. 5. 44.11								64. 10. 24.77		☉.
	27. 5. 44.25								64. 10. 24.91		☉.
60.28	7. 30. 18.35	30,300	39.2	41.0	7.93				45. 17. 34.56	- 16.79	α Cygni R.
	7. 30. 18.66								45. 17. 34.87		α Cygni.
60.28	68. 45. 43.75		41.8	43.4	2. 32.92	6.28	9.537	6.33	106. 35. 25.00		Venus.
	- 9. 41. 19.16				10.22				28. 5. 38.80	- 12.96	α Cephei R.
	- 9. 41. 18.85								28. 5. 39.21		α Cephei.
	56. 24. 37.95	30,292	46.2	47.2	1. 29.21	7.16		16. 6.70	93. 57. 1.58		☉.
	55. 32. 27.05				1. 27.43	7.12			93. 57. 2.32		☉.
	50. 32. 41.85	30,280	46.9	48.8	1. 11.78	5.63			88. 20. 56.28		Mercury.
	54. 41. 46.82	29,970	48.2	48.5	1. 22.58	7.01		16. 5.90	92. 46. 16.57		☉.
	55. 15. 56.78				1. 24.22	7.06			92. 46. 16.32		☉.
59.46	47. 53. 56.10	29,950	48.8	49.7	1. 4.57	5.76			85. 42. 3.19		Mercury.
	19. 58. 25.48	29,946	45.7	45.0	21.44				57. 45. 55.20	+ 7.81	Castor R.
	19. 58. 24.15								57. 45. 53.87		Castor.
59.73	46. 34. 1.89				1. 2.22				84. 22. 12.39	- 1.04	Procyon R.
	46. 34. 1.10								84. 22. 11.60		Procyon.
60.01	23. 47. 55.38				26.01				61. 35. 29.62	+ 5.92	Pollux R.
	23. 47. 55.10				27.54				61. 35. 29.39	+ 5.06	Pollux.
	25. 1. 52.71								62. 49. 28.53		♊ Geminorum.
	29. 24. 34.75		45.0	44.3					66. 59. 48.12		☉.
	29. 24. 34.36								66. 59. 47.73		☉.
	29. 24. 34.68				33.29	28. 17.29		15. 49.09	66. 59. 48.05		☉.
	29. 24. 34.77								66. 59. 48.14		☉.
	29. 24. 34.14								66. 59. 47.51		☉.
	33. 27. 56.83			43.7	39.08				71. 15. 41.19	0.77	☉ Canceri.
	45. 20. 1.71	30,094	44.3	45.6	1. 0.08	5.96			83. 17. 4.11		Mercury.
	52. 19. 51.69	30,168	44.0	45.0	1. 16.82	6.78		16. 4.30	90. 24. 14.50		☉.
	52. 51. 54.60				1. 18.32	6.83			90. 24. 14.07		☉.

Coincidence of Micrometer Wire with fixed Wire = 10', 135 at the middle wire. From March 13 = 10', 119, 10', 124, 10', 127, 10', 127, 10', 136 at the five wires. These coincidences increased by 0', 003 are used for the Moon on March 8 and 9.  
 One Micrometer Revolution = 20', 868.  
 Correction for Hums = + 7", 1. From March 8 = + 5", 9.  
 Adopted Zenith Point = 118°. 46'. 0", 12  
 Assumed Co-latitude = 37°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer. " "	Microscopes.						Microm. Reading. ".	Correction to Fixed Wire. " "	Interval of Obs. from Middle Wire. "	Correction to Middle Wire. "	Concluded reading of Circle. " " "	Observer.
			A	B	C	D	E	F						
Mar. 19	$\gamma$ Urs. Maj. R. M.	295. 5	3. 23,2	12,9	19,4	17,8	18,4	19,1	11,052	- 19,30			295. 7. 59,82	G.
	$\gamma$ Ursæ Majoris...	110. 20	3. 66,0	55,0	62,4	60,1	60,0	60,7					110. 24. 1,48	G.
Mar. 20	Venus N.L.....	177. 40	3. 14,4	5,9	12,9	10,8	12,9	12,0					177. 43. 12,12	G.
Mar. 21	$\odot$ N.L. M.....	164. 15	3. 28,2	20,2	27,3	25,8	28,3	28,2	9,853	+ 5,71			164. 18. 32,53	G.
	$\odot$ S.L.....	164. 50	0. 39,0	34,2	37,9	36,2	38,6	37,2					164. 50. 37,30	G.
	$\alpha^1$ Cancri R. M...	253. 0	2. 31,2	21,4	25,3	25,3	25,9	28,3	10,452	- 6,78			253. 2. 19,94	G.
	$\alpha^2$ Cancri.....	152. 25	4. 44,6	33,8	41,9	39,9	42,3	42,8					152. 29. 41,80	G.
Mar. 23	Venus N.L.....	176. 30	2. 50,8	42,0	48,0	46,1	49,0	47,9					176. 32. 47,85	G.
Mar. 24	(a) $\odot$ S.L. M.....	163. 40	0. 33,8	28,4	29,3	29,2	31,0	30,4	12,260	- 44,25	+3	+ 0,86	163. 39. 47,06	G.
	$\odot$ N.L.....	163. 5	2. 41,8	34,0	38,3	39,1	40,5	40,8			+4	+ 1,16	163. 7. 40,76	G.
	Mercury, center ..	153. 45	3. 8,4	0,0	5,9	3,9	7,2	5,8					153. 48. 5,80	G.
	Venus N.L.....	176. 5	3. 42,3	32,1	40,9	38,8	41,8	40,6					176. 8. 40,15	G.
Mar. 25	$\odot$ N.L. M.....	162. 40	4. 16,1	8,0	13,4	13,2	16,4	15,8	10,420	- 6,11			162. 44. 8,56	G.
	$\odot$ S.L.....	163. 15	1. 13,4	9,1	10,8	12,0	12,0	12,4					163. 16. 11,85	G.
	Mercury, center ..	153. 30	0. 27,0	23,3	24,3	24,2	26,4	24,9					153. 30. 25,10	G.
Apr. 1	Venus N.L.....	172. 45	0. 25,8	19,8	21,0	21,0	24,5	21,2					172. 45. 22,28	G.
Apr. 2	$\odot$ S.L. M.....	160. 10	0. 26,8	25,8	20,6	24,4	25,3	24,2	11,906	- 37,19			160. 9. 47,39	G.
	$\odot$ N.L.....	159. 35	2. 50,0	46,0	45,2	46,6	49,3	48,0					159. 37. 48,07	G.
	Venus N.L.....	172. 15	3. 52,4	43,6	47,4	47,8	52,9	49,8					172. 18. 49,73	G.
Apr. 3	$\odot$ N.L. M.....	159. 10	4. 26,8	18,0	24,3	23,9	28,8	25,4	9,000	+ 23,46			159. 14. 48,86	G.
	$\odot$ S.L.....	159. 45	1. 49,8	44,2	46,0	45,9	49,9	47,7					159. 46. 47,60	G.
	(b) $m$ Ursæ Maj. R. M.	298. 25	2. 24,0	15,1	18,8	18,8	18,0	19,3	10,050	+ 1,54			298. 27. 20,99	G.
	$m$ Ursæ Majoris...	107. 0	4. 47,8	31,9	43,4	39,0	42,1	42,0					107. 4. 41,95	G.
	$\nu$ Hy. et Crat. R. M.	225. 10	2. 22,4	13,3	16,8	15,2	19,7	18,8	5,683	+ 1. 32,67			225. 13. 50,82	G.
	$\nu$ Hydræ et Crateris	180. 15	3. 11,8	0,2	8,1	5,2	8,1	8,1					180. 18. 7,53	G.
	$\alpha$ Ursæ Maj. R. M.	303. 10	1. 30,0	21,8	24,8	23,7	23,9	25,3	14,841	- 1. 38,44			303. 9. 46,76	G.
	$\alpha$ Ursæ Majoris...	102. 20	2. 23,2	11,3	17,2	14,2	15,8	17,3					102. 22. 16,95	G.
	Polaris SP. R. M.	332. 5	2. 21,0	11,9	16,3	16,2	16,8	18,1	17,217	- 2. 28,02			332. 4. 49,15	G.
	Polaris SP.....	73. 25	2. 21,1	10,0	15,0	13,0	14,0	16,8					73. 27. 15,43	G.
	Spica R. M.....	230. 10	3. 39,5	28,1	33,7	31,4	37,1	36,9	5,064	+ 1. 45,59			230. 15. 20,74	G.
	Spica.....	175. 15	1. 44,0	34,0	40,3	38,2	40,2	41,9					175. 16. 40,10	G.
	(c) Venus N.L.....	171. 50	2. 7,0	0,0	4,8	3,7	6,2	2,3					171. 52. 4,42	G.
Apr. 4	(c) $\odot$ S.L. M.....	159. 20	4. 19,0	9,0	16,2	14,1	18,5	16,3	11,170	- 21,83			159. 23. 54,54	G.
	$\odot$ N.L.....	158. 50	1. 57,6	51,0	55,4	54,5	57,9	54,4					158. 51. 55,50	G.
Apr. 6	(d) $\odot$ S.L. M.....	158. 40	0. 17,3	17,1	13,1	18,6	18,8	16,3	15,361	- 1. 49,29			158. 38. 27,64	G.
	$\odot$ N.L.....	158. 5	1. 35,1	31,0	29,4	32,8	35,8	33,1					158. 6. 33,17	G.
	$\gamma$ Cephei SP. R. M.	343. 45	2. 44,7	35,3	39,5	40,4	41,8	42,4	10,328	- 4,25			343. 47. 36,97	G.
	$\gamma$ Cephei SP.....	61. 40	4. 28,3	16,1	21,2	19,2	24,4	25,8					61. 44. 23,35	G.
	$\beta$ Leonis R. M....	255. 55	4. 24,8	12,4	18,3	18,0	20,0	21,8	3,503	+ 2. 18,17			256. 1. 38,24	G.
	$\beta$ Leonis.....	149. 25	5. 24,9	11,6	20,8	17,0	21,7	21,0					149. 30. 20,55	G.
	Polaris SP. R. M.	332. 0	4. 22,4	10,0	16,5	16,8	21,0	20,3	8,627	+ 31,25			332. 4. 49,93	G.
	Polaris SP.....	73. 25	2. 16,3	6,0	10,2	8,8	9,8	11,1					73. 27. 10,80	G.
Apr. 7	$\odot$ N.L. M.....	157. 40	3. 22,4	12,0	17,0	16,7	20,1	18,0	8,173	+ 40,71			157. 43. 59,06	G.
	$\odot$ S.L.....	158. 15	0. 60,0	54,2	55,0	55,7	57,3	54,1					158. 15. 56,23	G.
Apr. 8	$\gg$ N.L. M.....	138. 0	4. 34,8	22,8	30,0	27,9	32,0	29,4	9,353	+ 15,65	-2	+ 3,34	138. 4. 49,36	G.
	$\gg$ N.L. M.....	...	...	...	...	...	...	...	9,261	+ 17,73	-1	+ 1,67	138. 4. 49,77	G.
	$\gg$ N.L. M.....	...	...	...	...	...	...	...	9,190	+ 19,24			138. 4. 49,61	G.
	$\gg$ N.L. M.....	...	...	...	...	...	...	...	9,137	+ 20,43	+1	- 1,67	138. 4. 49,13	G.
	$\gg$ N.L. M.....	...	...	...	...	...	...	...	9,062	+ 22,10	+2	- 3,34	138. 4. 49,13	G.

Coincidences at the five wires and Runs taken April 3, 2<sup>h</sup>. (Temp. 47°.)Coincidences at the five wires taken April 15, 1<sup>h</sup>.(a) Not satisfactory. Corrections for change of N.P.D.  
= + 0",82 and + 1",09 respectively.

(b) Too near the fixed wire for accurate bisection.

(c) Great motion.

(d) Without dark glass.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" -	"	" "	" " "	"	"
60,63	- 2. 21. 59,70	30,242	37,7	35,6	2,51				35. 25. 6,07	- 10,36	γ Ursæ Maj. R.
	- 2. 21. 58,64								35. 25. 7,13		γ Ursæ Majoris.
60,87	64. 57. 12,00	30,328	37,8	37,2	2. 9,26	5,80	9,550	6,13	102. 46. 29,87		Venus.
	51. 32. 32,41	30,334	40,5	40,6	1. 13,78	6,71		16. 3,80	89. 36. 53,56		☉.
	52. 4. 37,18				1. 17,25	6,76			89. 36. 52,15		☉.
	39. 43. 40,18	30,300	36,5	36,0	50,50				77. 31. 38,96	- 3,12	α <sup>2</sup> Cancri R.
	39. 43. 41,68								77. 31. 40,46		α <sup>2</sup> Cancri
	63. 46. 47,73	30,080	36,0	35,0	2. 2,26	5,67	9,556	6,07	101. 35. 58,67		Venus.
	50. 53. 46,94	30,094	37,7	38,0	1. 13,87	6,64		16. 2,90	88. 25. 59,55		☉.
	50. 21. 40,64				1. 12,49	6,59			88. 25. 57,72		☉.
	41. 2. 5,68			38,3	52,27	6,03			78. 49. 59,30		Mercury.
	63. 22. 40,03	30,256	36,1	35,3	2. 0,76	5,63	9,544	6,20	101. 11. 49,64		Venus.
61,47	49. 58. 8,44	30,254	38,0	38,4	1. 11,81	6,55		16. 2,60	88. 2. 24,58		☉.
	50. 30. 11,73				1. 13,18	6,60			88. 2. 23,99		☉.
	40. 44. 24,98	30,250	38,7	38,8	51,93	7,10			78. 32. 18,11		Mercury.
	59. 59. 22,16	29,696	43,4	46,1	1. 40,70	5,28	9,631	5,25	97. 48. 11,11		Venus.
	47. 23. 47,27	29,700	47,4	49,1	1. 3,00	6,28		16. 0,40	84. 55. 51,87		☉.
	46. 51. 47,95				1. 1,83	6,23			84. 55. 52,23		☉.
	59. 32. 49,61	29,980	44,4	44,4	1. 40,23	5,23	9,590	5,69	97. 21. 38,58		Venus.
	46. 28. 48,74	29,976	46,2	46,1	1. 1,96	6,18		16. 0,10	84. 32. 52,90		☉.
	47. 0. 47,48				1. 3,12	6,24			84. 32. 52,54		☉.
	- 5. 41. 20,87	29,946	39,2	36,2	5,99				32. 5. 41,42	+ 2,42	m Ursæ Maj. R.
59,18	- 5. 41. 18,17								32. 5. 44,12		m Ursæ Majoris.
61,86	67. 32. 9,30				2. 24,34				105. 21. 41,92	- 14,80	Hyd. et Crat. R.
	67. 32. 7,41								105. 21. 40,03		Hyd. et Crat.
62,29	- 10. 23. 46,64				11,02				27. 23. 10,62	+ 0,26	α Ursæ Maj. R.
	- 10. 23. 43,17								27. 23. 14,09		α Ursæ Majoris.
60,42	- 39. 18. 49,03	29,928	37,0	34,3	49,33				- 1. 32. 30,08	+ 9,71	Polaris SP. R.
	- 39. 18. 44,69								- 1. 32. 25,74		Polaris SP.
60,42	62. 30. 39,38				1. 55,37				100. 19. 43,03	- 17,72	Spica R.
	62. 30. 39,98								100. 19. 43,63		Spica.
60,42	59. 6. 4,30	29,894	41,8	41,3	1. 38,84	5,19	9,574	5,86	96. 54. 52,09		Venus.
60,16	46. 37. 54,42	29,892	44,0	43,6	1. 2,44	6,20		15. 59,80	84. 9. 59,14		☉.
	46. 3. 55,38				1. 1,29	6,14			84. 9. 58,61		☉.
59,40	43. 32. 27,52	29,612	51,3	52,3	59,18	6,12		15. 59,30	83. 24. 29,56		☉.
	43. 20. 53,05				58,09	6,06			83. 24. 32,66		☉.
60,37	- 51. 1. 36,83	29,468	43,6	41,5	1. 12,15				- 13. 15. 40,72	- 2,76	γ Cephei SP. R.
	- 51. 1. 36,77								- 13. 15. 40,64		γ Cephei SP.
60,37	36. 44. 21,88				43,62				74. 32. 13,78	- 12,60	β Leonis R.
	36. 44. 20,45								74. 32. 12,33		β Leonis.
60,37	- 39. 18. 49,81	29,444	42,3	40,7	47,89				- 1. 32. 29,42	+ 8,41	Polaris SP. R.
	- 39. 18. 49,32								- 1. 32. 28,93		Polaris SP.
60,37	44. 57. 58,94	29,550	46,7	46,4	37,91	6,02		15. 59,00	83. 1. 58,11		☉.
	45. 29. 56,11				59,00	6,08			83. 1. 58,31		☉.
60,37	25. 18. 49,24	30,026	43,3	41,9					62. 57. 31,51		☉.
	25. 18. 49,63								62. 57. 31,92		☉.
	25. 18. 49,49				28,15	24. 56,08		16. 1,92	62. 57. 31,76		☉.
	25. 18. 49,01								62. 57. 31,28		☉.
	25. 18. 49,01								62. 57. 31,28		☉.

Coincidence of Micrometer Wire with fixed Wire - 10', 119, 10', 124, 10', 127, 10', 127, 10', 136 at the five wires. From

April 1 - 10', 124 at the middle wire. From April 8 - 10', 103, 10', 111, 10', 113, 10', 116, 10', 121 at the five wires.

One Micrometer Revolution - 20", 868

Correction for Runa from γ Ursæ Majoris on March 19 - + 5".9.

Adopted Zenith Point - 112° 46'. 0", 12.

Assumed Co-latitude - 37°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  " "	Correction to Middle Wire.  " "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
Apr. 8	α Geminorum . . .	136.50	1.47,8	39,1	43,5	41,8	44,0	41,4					136.51.43,27	G.
Apr. 9	⊙ N.L. M. . . . .	157.0	0.26,8	21,6	21,2	21,2	24,2	23,5	13,467	-1.10,00			156.59.13,17	G.
	⊙ S.L. . . . .	157.30	1.11,8	4,8	8,3	7,1	9,8	8,0					157.31.8,53	G.
	δ N.L. . . . .	141.5	0.68,1	59,1	62,8	60,0	63,6	61,1			-2	+5,64	141.6.8,29	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,985	+2,64	-1	+2,82	141.6.8,11	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,878	+4,88			141.6.7,53	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,723	+8,20	+1	-2,82	141.6.8,03	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,615	+10,56	+2	-5,64	141.6.7,57	G.
	β Leonis R. M. . . .	256.0	2.26,1	16,1	20,4	19,0	22,1	23,0	12,071	-40,88			256.1.40,70	G.
	β Leonis . . . . .	149.30	0.23,8	16,8	18,8	15,8	17,0	18,2					149.30.18,47	G.
	γ Ursæ Maj. R. M. . .	295.5	2.22,0	12,0	16,8	16,2	15,5	18,1	7,880	+46,58			295.8.3,80	G.
	γ Ursæ Majoris . . .	110.20	3.62,8	49,7	57,8	54,2	55,8	55,8					110.23.56,78	G.
	γ Corvi R. M. . . . .	223.50	4.29,0	16,4	23,8	22,8	24,9	26,9	4,782	+1.51,23			223.56.16,06	G.
	(a) γ Corvi . . . . .	181.35	0.46,1	38,2	42,1	41,3	43,0	43,1					181.35.42,43	G.
	κ Draconis R. M. . .	311.10	2.20,0	9,4	14,7	13,3	14,8	15,1	8,075	+42,52			311.12.57,50	G.
	κ Draconis . . . . .	94.15	3.69,8	55,7	65,3	62,8	63,0	64,2					94.19.4,25	G.
Apr. 10	Capella R. M. . . . .	286.20	3.21,2	12,0	15,1	16,1	15,9	18,1	10,491	-7,91			286.23.8,86	G.
	Capella . . . . .	119.5	3.56,2	45,7	52,0	49,1	53,3	48,9					119.8.51,30	G.
	Procyon R. M. . . . .	246.10	2.25,2	17,3	19,0	20,4	22,0	21,4	11,228	-23,30			246.11.57,85	G.
	Procyon . . . . .	159.20	0.5,4	0,0	3,8	0,0	3,6	0,3					159.20.2,18	G.
	Pollux R. M. . . . .	268.55	2.24,0	17,0	18,8	19,5	20,0	20,2	7,950	+45,12			268.58.5,30	G.
	Pollux . . . . .	136.30	3.59,7	47,0	56,2	50,9	56,7	54,0					136.33.54,53	G.
	ο Ursæ Maj. R. M. . .	301.45	3.21,3	10,4	15,0	15,0	15,1	16,8	10,968	-17,86			301.47.58,11	G.
	ο Ursæ Majoris . . .	103.40	3.68,3	55,0	62,3	60,0	62,6	61,5					103.44.2,07	G.
	θ Cancri M. . . . .	146.20	2.14,9	6,2	11,0	9,1	11,8	11,0	15,277	-1.47,78			146.20.23,14	G.
	π <sup>u</sup> Ursæ Maj. R. M. . .	305.25	2.17,0	7,0	12,1	11,0	11,2	12,6	13,798	-1.16,92			305.25.55,15	G.
	π <sup>u</sup> Ursæ Majoris . . .	100.5	1.11,7	2,0	6,5	5,3	4,8	4,8					100.6.5,97	G.
	ε Cancri . . . . .	146.10	3.59,9	48,7	57,6	53,4	57,7	56,3					146.13.56,05	G.
	(b) δ N.L. . . . .	145.30	0.40,0	33,2	33,9	33,8	37,3	35,4			-2	+7,14	145.30.42,81	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,946	+3,44	-1	+3,57	145.30.42,68	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,803	+6,45			145.30.42,12	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,663	+9,45	+1	-3,57	145.30.41,55	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,509	+12,77	+2	-7,14	145.30.41,30	G.
	(c) Venus N.L. . . . .	168.35	4.62,1	59,6	57,8	61,0	61,3	58,8					168.40.0,10	G.
	(d) Polaris R. M. . . .	329.0	0.27,2	20,1	20,3	22,0	24,4	23,0	11,418	-27,26			328.59.55,62	G.
	(d) Polaris . . . . .	76.30	2.10,0	2,2	3,3	4,6	6,8	2,9					76.32.5,20	G.
Apr. 11	⊙ N.L. M. . . . .	156.15	1.21,3	16,4	17,0	17,6	21,9	17,3	13,787	-1.16,68			156.15.2,05	G.
	⊙ S.L. . . . .	156.45	1.58,3	53,1	54,1	53,9	57,7	54,7					156.46.55,52	G.
	(b) δ N.L. M. . . . .	150.50	1.63,3	55,3	59,0	57,0	61,8	58,7			-2	+7,98	150.52.7,38	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,929	+3,80	-1	+3,99	150.52.7,19	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,759	+7,36			150.52.6,76	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,580	+11,19	+1	-3,99	150.52.6,60	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,395	+15,16	+2	-7,98	150.52.6,58	G.
	Regulus R. M. . . . .	253.15	3.19,7	8,9	13,4	12,1	15,0	15,9	9,008	+23,04			253.18.37,57	G.
	Regulus . . . . .	152.10	3.25,0	15,7	20,1	18,8	22,9	22,1					152.13.21,13	G.
	λ Ursæ Maj. R. M. . .	284.15	2.25,1	15,4	18,9	19,1	19,8	21,2	14,138	-1.24,02			284.15.56,16	G.
	λ Ursæ Majoris . . .	121.15	0.66,9	58,8	60,6	60,7	61,1	60,5					121.16.1,55	G.
	ρ Leonis . . . . .	154.50	0.28,9	23,2	23,0	23,1	27,5	26,0					154.50.25,33	G.
Apr. 12	α Ursæ Maj. R. M. . .	303.10	0.34,8	28,0	28,3	27,7	28,8	30,9	12,152	-42,57			303.9.47,23	G.
	α Ursæ Majoris . . .	102.20	2.19,0	8,0	12,0	10,9	12,8	13,2					102.22.12,90	G.
	ρ Leonis . . . . .	154.50	0.30,8	24,4	24,6	24,0	30,2	27,1					154.50.26,90	G.
	δ N.L. . . . .	156.45	2.24,2	15,0	18,9	18,0	22,5	20,3			-2	+8,36	156.47.28,44	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,923	+3,93	-1	+4,18	156.47.28,19	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,715	+8,29			156.47.28,37	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,528	+12,27	+1	-4,18	156.47.28,17	G.
	δ N.L. M. . . . .	...	...	...	...	...	...	...	9,334	+16,43	+2	-8,36	156.47.28,15	G.

Runs taken April 13, 23<sup>h</sup>. (Temp. 54°, 4.)

(a) The following division was bisected by microscope B, the Run of which is -6",8. Consequently +6",8 has been added to the reading of that microscope.

(b) Good.

(c) No correction for runs.

(d) Unsatisfactory.

Sec. of Apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET
			Attach.	Free.							
-	-	Inch.	-	-	-	-	-	-	-	-	-
	24. 5. 43.15	30,026	43.3	41.4	26.64				61. 33. 18.07	+ 7.80	♊ Geminorum.
	44. 13. 13.05	30,220	44.3	44.8	57.89	5.94		15. 58.50	82. 17. 11.78		☉.
	44. 45. 8.41				58.97	5.99			82. 17. 11.17		☉.
	28. 20. 8.17	30,250	45.8	41.9					65. 56. 15.87		☿.
	28. 20. 7.99								65. 56. 15.69		☿.
	28. 20. 7.41				32.33	27. 24.59		15. 51.68	65. 56. 15.11		☿.
	28. 20. 7.91								65. 56. 15.61		☿.
	28. 20. 7.45								65. 56. 15.15		☿.
59.59	36. 44. 19.42	30,296	39.2	35.7	43.39				74. 32. 13.09	- 12.36	♋ Leonis R.
	36. 44. 18.35								74. 32. 12.02		♋ Leonis.
60.29	- 2. 22. 3.68				2.52				35. 25. 2.08	- 5.32	♌ Ursæ Maj. R.
	- 2. 22. 3.34								35. 25. 2.42		♌ Ursæ Majoris.
59.25	68. 49. 44.06			36.5	2. 35.65				106. 39. 27.99	- 17.47	♌ Corvi R.
	68. 49. 42.31								106. 39. 26.24		♌ Corvi.
60.88	- 18. 26. 57.38				20.26				19. 19. 50.64	- 6.80	♍ Draconis R.
	- 18. 26. 55.87								19. 19. 52.15		♍ Draconis.
60.08	6. 22. 51.26	30,268	45.8	46.6	6.63				44. 10. 6.19	+ 15.97	♎ Capella R.
	6. 22. 51.18								44. 10. 6.11		♎ Capella.
60.02	46. 34. 2.57	30,254	44.4	47.0	1. 2.61				84. 22. 13.16	- 1.02	♏ Procyon R.
	46. 34. 2.06								84. 22. 12.95		♏ Procyon.
59.92	23. 47. 54.82				26.17				61. 35. 29.27	+ 7.02	♐ Pollux R.
	23. 47. 54.41								61. 35. 28.86		♐ Pollux.
60.09	- 9. 1. 57.99			46.7	9.44				28. 45. 0.85	+ 15.29	♑ Ursæ Maj. R.
	- 9. 1. 58.05								28. 45. 0.79		♑ Ursæ Majoris.
	33. 34. 23.02				39.40				71. 22. 10.70	+ 1.13	♒ Cancri.
60.26	- 12. 39. 55.03				13.34				25. 6. 59.91	+ 15.64	♒ Ursæ Maj. R.
	- 12. 39. 54.15								25. 7. 0.79		♒ Ursæ Majoris.
	33. 27. 55.93				39.24				71. 15. 43.45	+ 0.39	♓ Cancri.
	32. 44. 42.69			44.9					70. 17. 14.77		☿.
	32. 44. 42.56								70. 17. 14.64		☿.
	32. 44. 42.00				38.32	30. 56.06		15. 41.54	70. 17. 14.08		☿.
	32. 44. 41.45								70. 17. 13.51		☿.
	32. 44. 41.18								70. 17. 13.26		☿.
	53. 53. 59.98	30,140	49.6	50.3	1. 26.52	4.88	9.635	5.08	93. 42. 34.98		Venus.
60.41	- 36. 13. 55.50	30,120	52.7	53.6	42.69				1. 32. 30.09	+ 7.36	♊ Polaris R.
	- 36. 13. 54.92								1. 32. 30.67		♊ Polaris.
	43. 29. 1.93	30,110	52.6	53.7	55.20	5.86		15. 58.00	81. 32. 57.55		☉.
	44. 0. 55.40				56.24	5.91			81. 32. 56.01		☉.
	38. 6. 7.26	30,018	49.5	48.3					75. 34. 35.92		☿.
	38. 6. 7.07								75. 34. 35.73		☿.
	38. 6. 6.64				46.02	34. 57.49		15. 31.85	75. 34. 35.50		☿.
	38. 6. 6.48								75. 34. 35.14		☿.
	38. 6. 6.46								75. 34. 35.12		☿.
59.35	39. 27. 22.55				45.30				77. 15. 19.13	6.61	♌ Regulus R.
	39. 27. 21.01								77. 15. 17.59		♌ Regulus.
58.86	8. 30. 3.96				8.78				46. 17. 21.92	+ 1.86	♌ Ursæ Maj. R.
	8. 30. 1.45								46. 17. 18.49		♌ Ursæ Majoris.
	42. 4. 25.21			47.1	53.10				79. 52. 26.59	- 8.81	♋ Leonis.
60.07	- 10. 23. 47.11				10.80				27. 23. 10.97	+ 2.07	♌ Ursæ Maj. R.
	- 10. 23. 47.32								27. 23. 10.26		♌ Ursæ Majoris.
	42. 4. 29.78	29,942	47.5	45.0	53.10				79. 52. 28.16	8.78	♋ Leonis.
	44. 1. 28.32								81. 25. 55.16		☿.
	44. 1. 28.07								81. 25. 54.91		☿.
	44. 1. 28.25				56.84	39. 0.97		15. 22.69	81. 25. 55.09		☿.
	44. 1. 28.05								81. 25. 54.89		☿.
	44. 1. 28.03								81. 25. 54.87		☿.

Coincidence of Micrometer Wire with fixed Wire = 107,103, 107,111, 107,112, 107,116, 107,121 at the five wires

One Micrometer Revolution = 20".868.

Correction for Run = + 5".9. From April 10 = + 5".4

Adopted Zenith Point = 112° 40'.0".12.

Assumed Co-latitude = 37°. 47'. 8".28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F								
			"	"	"	"	"	"					"	"	"	
Apr. 13	(a) ☉ N.L. M. ....	155.30	2.17,0	10,8	13,0	12,2	16,0	12,4	12,394	-47,62			155.31	.26,20	G.	
	☉ S.L. ....	156.0	3.23,8	16,3	19,0	19,4	23,6	18,9					156.3	.20,55	G.	
	Capella R. M. ....	286.20	3.30,4	18,1	20,7	21,7	23,9	24,1	10,862	-15,65			286.23	.7,88	G.	
	Capella. ....	119.5	3.55,4	46,9	50,6	49,1	54,3	49,8					119.8	.51,45	G.	
	χ Leonis. ....	156.45	1.10,6	3,8	4,9	4,8	8,4	6,0					156.46	.6,55	G.	
	δ Leonis R. M. ....	261.55	2.23,6	13,8	16,0	16,4	18,8	18,1	9,432	+14,19			261.57	.32,24	G.	
	δ Leonis. ....	143.30	4.29,7	18,1	25,4	23,2	28,2	27,3					143.34	.25,82	G.	
	q Leonis. ....	162.0	4.37,8	26,4	32,7	32,6	36,7	34,7					162.4	.34,00	G.	
	) N.L. ....	162.55	2.40,8	30,6	35,7	35,1	39,0	37,3					162.57	.45,16	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,957	+3,21	-2	+8,44	162.57	.44,15	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,771	+7,11	-1	+4,22	162.57	.43,83	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,538	+12,06	+1	-4,22	162.57	.44,56	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,329	+16,53	+2	-8,44	162.57	.44,81	G.	
	(b) Venus N.L. ....	167.15	0.46,2	42,0	42,0	43,3	46,2	42,1					167.15	.43,72	G.	
Apr. 14	(c) ☉ S.L. ....	155.40	1.47,5	45,5	43,1	44,1	48,2	43,6					155.41	.45,31	G.	
	☉ N.L. ....	155.5	4.51,0	44,3	48,2	48,5	51,5	48,0					155.9	.50,54	G.	
	) N.L. ....	169.5	1.63,0	55,0	58,0	58,3	61,4	58,9					169.7	.7,63	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,924	+3,91	-1	+4,15	169.7	.7,39	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,743	+7,70			169.7	.7,03	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,557	+11,66	+1	-4,15	169.7	.6,84	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,347	+16,15	+2	-8,30	169.7	.7,18	G.	
	q Virginis. ....	173.30	1.36,0	28,2	29,1	28,8	33,3	31,6					173.31	.31,33	G.	
	γ <sup>1</sup> Virginis. ....	165.30	2.9,3	1,9	6,0	4,4	7,5	6,8					165.32	.6,22	G.	
	ε Ursæ Maj. R. M. ....	297.20	3.23,8	13,8	16,9	16,1	18,5	18,9	11,852	-36,31			297.22	.42,06	G.	
	ε Ursæ Majoris ...	108.5	4.24,8	12,4	18,8	16,7	19,3	18,9					108.9	.18,97	G.	
	Polaris SP. R. M. ....	332.0	4.40,8	30,9	34,7	36,3	38,5	38,4	9,401	+14,84			332.4	.51,96	G.	
	Polaris SP. ....	73.25	2.16,0	7,0	8,0	8,9	10,9	10,0					73.27	.10,38	G.	
	Venus N.L. ....	166.45	2.29,8	22,2	23,0	24,3	28,3	24,9					166.47	.25,68	G.	
	Polaris R. M. ....	329.0	0.36,5	26,5	27,8	28,2	32,4	31,0	11,723	-33,62			328.59	.56,83	G.	
	Polaris. ....	76.30	2.9,8	0,8	5,1	3,2	9,2	2,8					76.32	.5,38	G.	
Apr. 15	(d) ☉ N.L. M. ....	154.45	3.30,8	24,2	24,9	26,7	32,4	26,8	10,232	-2,51			154.48	.25,51	G.	
	☉ S.L. ....	155.20	0.20,2	18,4	15,0	16,9	22,2	16,1					155.20	.18,17	G.	
	q Virginis. ....	173.30	1.35,2	26,4	27,8	27,5	32,4	31,3					173.31	.30,27	G.	
	γ <sup>1</sup> Virginis. ....	165.30	2.10,2	1,2	5,2	3,6	6,8	6,8					165.32	.5,87	G.	
	ε Ursæ Maj. R. M. ....	297.20	3.24,9	14,0	17,8	16,4	19,4	19,0	11,894	-37,19			297.22	.41,76	G.	
	ε Ursæ Majoris ...	108.5	4.25,2	12,8	19,0	17,0	19,5	19,9					108.9	.19,38	G.	
	(e) ) N.L. ....	175.0	1.37,2	27,9	29,3	30,5	32,2	32,8					175.1	.39,74	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,925	+3,89	-2	+7,92	175.1	.39,67	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,778	+6,97	-1	+3,96	175.1	.38,79	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,550	+11,81	+1	-3,96	175.1	.39,67	G.	
	) N.L. M. ....	...	...	...	...	...	...	...	9,379	+15,48	+2	-7,92	175.1	.39,38	G.	
	53 Virginis. ....	180.15	1.53,2	45,2	46,7	47,7	50,8	49,0					180.16	.48,97	G.	
	Venus N.L. ....	166.15	3.67,1	58,0	63,2	62,9	68,0	61,9					166.19	.3,97	G.	
	Polaris R. M. ....	329.0	0.32,9	24,2	24,1	26,4	28,4	25,7	11,641	-31,91			328.59	.55,09	G.	
	Polaris. ....	76.30	2.11,2	1,9	5,9	5,2	8,2	3,8					76.32	.6,27	G.	
Apr. 16	☉ S.L. M. ....	155.0	0.33,0	29,9	26,8	27,3	34,0	27,6	14,331	-1.28,04			154.59	.1,78	G.	
	☉ N.L. ....	154.25	2.12,4	7,3	8,7	7,9	13,4	8,4					154.27	.9,93	G.	
	) S.L. M. ....	181.0	1.62,3	54,1	56,7	56,8	58,0	57,5	21,354	-3.54,78	-2	+7,30	180.58	.10,30	G.	
	) S.L. M. ....	...	...	...	...	...	...	...	21,133	-3.50,01	-1	+3,65	180.58	.11,42	G.	
	(f) ) S.L. M. ....	180.55	3.16,2	6,5	10,7	10,8	12,4	12,3					180.58	.11,85	G.	
	) S.L. M. ....	...	...	...	...	...	...	...	9,994	+2,55	+1	-3,65	180.58	.10,75	G.	
	) S.L. M. ....	...	...	...	...	...	...	...	9,809	+6,51	+2	-7,30	180.58	.11,06	G.	
Apr. 17	λ Virginis. ....	177.30	4.58,2	45,9	53,5	50,7	53,3	53,3					177.34	.53,03	G.	
	(e) ) S.L. ....	185.40	3.42,1	29,6	33,9	34,8	35,9	36,9					185.43	.42,27	G.	
	) S.L. M. ....	...	...	...	...	...	...	...	9,930	+3,78	-2	+6,34	185.43	.42,88	G.	
	) S.L. M. ....	...	...	...	...	...	...	...	9,837	+5,73	-1	+3,17	185.43	.41,66	G.	
	) S.L. M. ....	...	...	...	...	...	...	...	9,750	+7,64	+1	-3,17	185.43	.40,40	G.	
	) S.L. M. ....	...	...	...	...	...	...	...	9,598	+10,91	+2	-6,34	185.43	.40,50	G.	

(a) Much obscured by misty clouds.

(b) Very unsteady.

(c) Hurried. Both observations on the fixed wire, the divisions being bisected for S.L. between the observa-

tions. Corrections for change of N.P.D. = -0".25 and +1".01, respectively.

(d) Not good.

(e) Badly defined.

(f) N.L. too rough to be taken.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
59,67	42. 45. 26,08	29,850	53,2	55,0	53,22	5,77		15. 57,40	80. 49. 19,21		⊙.
	43. 17. 20,43				54,22	5,83			80. 49. 19,70		⊙.
	6. 22. 52,24	29,788	52,8	56,3	6,41				44. 10. 6,93	+ 15,64	Capella R.
	6. 22. 51,33								44. 10. 6,02		Capella.
59,03	44. 0. 6,43	29,772	48,0	45,6	56,51				81. 48. 11,22	- 11,08	γ Leonis.
	30. 48. 27,88				34,92				68. 36. 11,08	- 8,42	δ Leonis R.
	30. 48. 25,70								68. 36. 8,90		δ Leonis.
	49. 18. 33,88				1. 8,02				87. 6. 50,18	- 12,89	q Leonis.
	50. 11. 45,04								87. 32. 32,08		⋄.
	50. 11. 44,03								87. 32. 31,07		⋄.
	50. 11. 43,71				1. 10,17	42. 45,70		13. 14,29	87. 32. 30,75		⋄.
	50. 11. 44,44								87. 32. 31,48		⋄.
	50. 11. 44,69								87. 32. 31,73		⋄.
	54. 29. 43,60	29,750	50,3	50,2	1. 21,09	4,75	9,597	5,48	92. 18. 13,70		Venus.
60,52	42. 55. 45,19	29,734	53,1	56,0	53,23	5,79		15. 57,20	80. 27. 43,71		⊙.
	42. 23. 50,42				52,24	5,73			80. 27. 42,41		⊙.
	56. 21. 7,51	29,780	48,8	47,1					93. 38. 51,50		⋄.
	56. 21. 7,27								93. 38. 51,26		⋄.
	56. 21. 6,91				1. 27,52	45. 58,32		15. 6,51	93. 38. 50,90		⋄.
	56. 21. 6,72								93. 38. 50,71		⋄.
	56. 21. 7,06								93. 38. 51,05		⋄.
	60. 45. 31,21				1. 43,94				98. 34. 23,43	- 17,45	q Virginis.
	52. 46. 6,10				1. 16,72				90. 34. 31,10	- 16,86	γ Virginis.
	- 4. 36. 41,94				4,71				33. 10. 21,63	- 9,66	ε Ursæ Maj. R.
	- 4. 36. 41,15								33. 10. 22,42		ε Ursæ Majoris.
	- 39. 18. 51,84			45,6					- 1. 32. 31,51	+ 6,41	Polaris SP. R.
61,17	- 39. 18. 49,74				47,95				- 1. 32. 29,41		Polaris SP.
61,11	54. 1. 25,56	29,868	51,8	56,1	1. 19,06	4,70	9,614	5,30	91. 49. 53,50		Venus.
	- 36. 13. 56,71	29,888	55,4	59,1	41,90				1. 32. 29,67	+ 6,26	Polaris R.
	- 36. 13. 54,74								1. 32. 31,64		Polaris.
60,57	42. 2. 25,39	29,884	54,7	59,2	31,52	5,69		15. 56,90	80. 6. 16,40		⊙.
	42. 54. 18,03				52,49	5,75			80. 6. 16,17		⊙.
	60. 45. 30,15	29,946	52,8	48,7	1. 44,19				98. 34. 22,62	- 17,49	q Virginis.
	52. 46. 5,73				1. 16,88				90. 34. 30,91	- 16,84	γ Virginis.
	- 4. 36. 41,64				4,72				33. 10. 21,92	- 9,37	ε Ursæ Maj. R.
	- 4. 36. 40,74								33. 10. 22,82		ε Ursæ Majoris.
	62. 15. 39,62			48,4					99. 31. 6,91		⋄.
	62. 15. 39,55								99. 31. 6,84		⋄.
	62. 15. 38,67				1. 50,92	48. 31,49		14. 59,58	99. 31. 5,96		⋄.
	62. 15. 39,55								99. 31. 6,84		⋄.
	62. 15. 39,26								99. 31. 6,55		⋄.
	67. 30. 48,85				2. 20,56				105. 20. 17,69	- 18,45	53 Virginis.
60,68	53. 33. 3,83	30,044	55,4	55,6	1. 18,24	4,66	9,563	5,84	91. 21. 31,55		Venus.
	- 36. 13. 54,97			58,2	42,19				1. 32. 31,12	+ 5,96	Polaris R.
	- 36. 13. 53,85								1. 32. 32,24		Polaris.
60,57	42. 13. 1,66	30,050	58,0	59,2	52,12	5,71		15. 56,70	79. 44. 59,65		⊙.
	41. 41. 9,81				51,17	5,65			79. 45. 0,31		⊙.
	68. 12. 10,18	30,126	45,7	43,8					104. 56. 16,66		⋄.
	68. 12. 11,30								104. 56. 17,78		⋄.
	68. 12. 11,73				2. 27,68	50. 35,78		14. 53,70	104. 56. 18,21		⋄.
	68. 12. 10,63								104. 56. 17,11		⋄.
	68. 12. 10,94								104. 56. 17,42		⋄.
	64. 48. 52,91	30,040	44,0	38,4	2. 6,91				102. 38. 8,10	- 18,55	λ Virginis.
	72. 57. 42,15								109. 41. 24,80		⋄.
	72. 57. 42,76								109. 41. 25,41		⋄.
	72. 57. 41,54				3. 13,41	51. 50,17		14. 48,87	109. 41. 24,19		⋄.
	72. 57. 40,28								109. 41. 22,93		⋄.
	72. 57. 40,58								109. 41. 23,05		⋄.

Coincidence of Micrometer Wire with fixed Wire - 107,103, 107,111, 107,112, 107,116, 107,121 at the five wires.

One Micrometer Revolution - 20",868.

Correction for Run - + 3",4.

Adopted Zenith Point - 112°. 46'. 0".12

Assumed Co-latitude - 37°. 47'. 8".28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Apr. 17	Jupiter N.L. ....	180. 15	2. 23,4	12,8	16,5	16,8	15,2	18,1					180. 17. 17,40	G.
	(a) Venus N.L. ....	165. 20	2. 12,8	5,4	10,0	7,9	10,9	8,0					165. 22. 9,42	G.
Apr. 18	☉ S.L. M. ....	154. 15	2. 15,3	8,2	10,8	11,2	14,9	10,0	10,785	- 14,04			154. 16. 57,94	G.
	☉ N.L. ....	153. 45	0. 11,0	8,2	7,2	6,8	11,0	5,8					153. 45. 8,35	G.
Apr. 20	☉ S.L. M. ....	153. 35	1. 27,0	23,0	22,9	24,8	27,9	23,0	12,221	- 42,97			153. 35. 41,86	G.
	☉ N.L. ....	153. 0	3. 52,0	45,6	48,7	49,0	52,9	49,0					153. 3. 49,72	G.
Apr. 22	Venus N.L. ....	162. 55	4. 23,1	13,2	17,9	18,0	21,8	19,9					162. 59. 19,20	G.
Apr. 23	(b) ☉ N.L. M. ....	152. 0	3. 21,9	16,3	15,0	18,5	20,6	17,3	10,216	- 2,19			152. 3. 16,24	G.
	☉ S.L. ....	152. 35	0. 8,7	7,9	2,0	5,8	7,1	4,0					152. 35. 5,92	G.
	η Ursæ Maj. R. M. ....	290. 40	0. 15,9	8,8	8,9	10,0	8,4	9,4	11,174	- 22,18			290. 39. 48,07	G.
	η Ursæ Majoris ...	114. 50	2. 18,0	7,4	9,8	10,8	10,8	11,2					114. 52. 11,45	G.
	τ Virginis R. M. ....	242. 50	1. 31,2	23,2	21,3	24,3	26,1	26,8	4,640	+ 1. 54,17			242. 53. 19,72	G.
	τ Virginis. ....	162. 35	3. 45,8	33,9	39,3	39,0	42,0	41,2					162. 38. 40,38	G.
	α Draconis R. M. ....	305. 40	2. 19,7	9,1	11,8	12,2	12,9	12,3	12,934	- 58,91			305. 41. 14,21	G.
	α Draconis. ....	99. 50	0. 52,0	43,2	45,1	46,0	45,9	45,9					99. 50. 46,38	G.
	Venus N.L. ....	162. 30	0. 52,4	47,2	45,8	48,1	49,1	47,1					162. 30. 48,32	G.
	Polaris R. M. ....	329. 0	0. 48,1	39,3	39,0	42,2	43,7	42,8	12,433	- 48,46			328. 59. 54,09	G.
	Polaris. ....	76. 30	2. 15,8	4,3	7,4	8,3	10,4	7,0					76. 32. 8,98	G.
Apr. 24	☉ S.L. M. ....	152. 15	0. 30,1	26,2	22,2	25,3	27,8	23,8	10,441	- 6,89			152. 15. 19,03	G.
	☉ N.L. ....	151. 40	3. 33,7	22,9	25,8	26,9	31,6	27,3					151. 43. 28,20	G.
	☉ N.L. M. ....	185. 55	1. 17,9	10,0	10,5	12,6	14,1	11,9	9,440	+ 13,85	-2	- 6,48	185. 56. 20,27	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	9,603	+ 10,51	-1	- 3,24	185. 56. 20,17	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	9,710	+ 8,37			185. 56. 21,27	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	9,873	+ 5,02	+1	+ 3,24	185. 56. 21,16	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	10,053	+ 1,40	+2	+ 6,48	185. 56. 20,78	G.
	α Cephei R. M. ....	302. 25	2. 27,0	17,2	19,4	19,6	20,9	19,3	10,399	- 6,01			302. 27. 14,67	G.
	α Cephei. ....	103. 0	4. 54,4	40,9	46,8	47,9	49,8	46,7					103. 4. 47,98	G.
	β Cephei R. M. ....	310. 20	4. 24,0	12,0	15,9	17,3	19,8	18,7	10,671	- 11,68			310. 24. 6,49	G.
	β Cephei. ....	95. 5	2. 62,7	51,8	55,0	56,0	57,4	54,7					95. 7. 56,42	G.
	α Pegasi R. M. ....	254. 50	4. 27,7	15,0	19,0	20,1	21,4	22,0	9,465	+ 13,48			254. 54. 34,56	G.
	α Pegasi. ....	150. 35	2. 30,6	22,1	24,3	24,8	28,4	23,9			+3	+ 0,34	150. 37. 26,14	G.
	Venus N.L. ....	162. 0	2. 17,8	13,6	11,7	15,1	18,1	12,0					162. 2. 14,83	G.
	(c) Mercury, center...	161. 55	2. 21,2	18,0	15,4	19,8	22,4	17,2					161. 57. 19,12	G.
	Polaris R. M. ....	329. 0	1. 23,0	11,4	13,2	14,5	17,0	15,4	13,988	- 1. 20,90			328. 59. 54,92	G.
	Polaris. ....	76. 30	2. 14,8	4,8	7,6	7,7	11,5	4,9					76. 32. 8,67	G.
Apr. 25	(d) ☉ N.L. M. ....	151. 20	3. 23,0	19,4	17,0	21,1	24,8	20,9	8,487	+ 33,89			151. 23. 55,09	G.
	☉ S.L. ....	151. 55	0. 43,4	43,5	37,0	43,4	44,9	39,8					151. 55. 42,03	G.
	Procyon R. M. ....	246. 10	1. 28,4	21,2	16,9	24,9	23,3	25,8	8,594	+ 31,66			246. 11. 55,14	G.
	Procyon. ....	159. 20	0. 6,9	6,9	2,0	5,5	9,4	2,5					159. 20. 5,53	G.
	Pollux R. M. ....	268. 55	1. 33,4	24,9	22,6	28,0	27,2	28,4	5,441	+ 1. 37,45			268. 58. 4,93	G.
	Pollux. ....	136. 30	3. 59,7	52,0	54,2	54,3	59,8	53,2					136. 33. 55,73	G.
	(e) ☉ N.L. M. ....	181. 0	3. 23,3	13,4	16,2	19,0	20,0	19,7	10,824	- 15,03	-2	- 7,70	181. 2. 56,04	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	10,968	- 17,96	-1	- 3,85	181. 2. 56,96	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	11,190	- 22,52			181. 2. 56,25	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	11,300	- 24,76	+1	+ 3,85	181. 2. 57,86	G.
	☉ N.L. M. ....	...	...	...	...	...	...	...	11,540	- 29,64	+2	+ 7,70	181. 2. 56,83	G.
Apr. 26	(f) Venus N.L. ....	161. 5	0. 22,1	17,8	13,9	17,0	18,8	14,3					161. 5. 17,33	G.
Apr. 27	☉ S.L. M. ....	151. 15	2. 25,0	17,8	17,8	19,0	21,2	19,0	10,300	- 3,95			151. 17. 16,13	G.
	☉ N.L. ....	150. 45	0. 32,1	27,7	26,3	27,8	29,2	25,4					150. 45. 28,10	G.
	(g) Aldebaran R. M. ....	256. 40	4. 25,0	12,1	15,6	17,3	19,1	18,8	8,538	+ 32,82			256. 44. 51,02	G.
	Aldebaran. ....	148. 45	2. 15,5	7,8	8,0	10,1	12,6	8,4					148. 47. 10,52	G.
	Capella R. M. ....	286. 20	2. 20,8	9,2	9,4	11,9	12,0	12,4	7,444	+ 55,66			286. 23. 8,39	G.
	Capella. ....	119. 5	3. 59,2	50,1	51,9	53,0	56,0	51,3					119. 8. 53,78	G.

Coincidences at the five wires and Runs taken April 27, 2<sup>h</sup>. (Temp. 66°.)

- (a) Great vibration.  
 (b) Wires too close for satisfactory bisection.  
 (c) Faint.  
 (d) Great difference between the readings of the attached and free thermometers. The error in the amount of

refraction calculated by supposing the former the same as the latter is 0",03.

- (e) Very faint.  
 (f) Bad observation.  
 (g) Unsteady.

Sec. of apparent Zenith Point	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" "	"	"
59.76	67.31.17.28	30.028	41.3	38.2	2.24.02	1.78	8.106	20.94	105.21.8.74		Jupiter.
	52.36.9.30	29.968	48.6	49.8	1.16.31	4.57	9.615	5.29	90.24.34.61		Venus.
	41.30.57.82	29.960	53.0	54.0	51.25	5.63			79.2.55.62		☉.
	40.59.8.23				50.30	5.57		15.56.10	79.2.57.34		☉.
	40.49.41.74	29.800	53.0	55.8	49.57	5.55			78.21.38.44		☉.
	40.17.49.60				48.66	5.49		15.55.60	78.21.36.65		☉.
	50.13.19.08	30.260	60.8	58.4	1.9.55	4.35	9.600	5.42	88.1.37.98		Venus.
	39.17.16.12	30.230	59.8	60.0	47.25	5.37			77.21.1.08		☉.
	39.49.5.80				48.15	5.43		15.54.80	77.21.2.00		☉.
	2.6.12.05	30.202	54.0	50.8					39.53.22.49	-13.07	η Ursæ Maj. R.
	2.6.11.33				2.16				39.53.21.77		η Ursæ Majoris.
	49.52.40.40								87.40.58.32	-18.34	τ Virginis R.
	49.52.40.26				1.9.64				87.40.58.18		τ Virginis.
	12.55.14.09				13.49				24.51.40.70	-12.73	α Draconis R.
	12.55.13.74								24.51.41.05		α Draconis.
	49.44.48.20	30.200	53.8	56.0	1.8.59	4.31	9.582	5.61	87.33.6.37		Venus.
	36.13.53.97				42.60				1.32.31.71	+3.66	Polaris R.
	36.13.51.14								1.32.34.54		Polaris.
	39.29.18.91	30.192	61.0	62.2	47.29	5.39			77.1.14.49		☉.
	38.57.28.08				46.41	5.33		15.54.60	77.1.12.04		☉.
	73.10.20.15	30.100	52.6	51.2					110.22.38.61		☉.
	73.10.20.05								110.22.38.51		☉.
	73.10.21.15				3.11.11	53.12.38		15.11.45	110.22.39.61		☉.
	73.10.21.04								110.22.39.50		☉.
	73.10.20.66								110.22.39.12		☉.
	9.41.14.55			52.2					28.5.43.76	-18.60	α Cephei R.
	9.41.12.14				9.97				28.5.46.17		α Cephei.
	17.38.6.57				18.57				20.8.43.34	-18.02	β Cephei R.
	17.38.3.70								20.8.46.01		β Cephei.
	57.51.25.56	30.094	55.4	58.0	44.84				75.39.18.68	-4.00	α Pegasi R.
	57.51.26.02								75.39.19.14		α Pegasi.
	49.16.14.71	30.090	60.6	62.1	1.6.38	4.26	9.571	5.72	87.4.50.83		Venus.
	49.11.19.00				1.6.19	9.50			86.59.23.97		Mercury.
	36.13.54.80				41.93				1.32.31.55	+3.36	Polaris R.
	36.13.51.45								1.32.34.90		Polaris.
0.34	38.37.52.84	30.078	61.2	70.2	44.98	5.29			76.41.35.11		☉.
	39.9.39.78				45.83	5.35		15.54.30	76.41.34.24		☉.
	46.34.7.11	30.050	63.6	68.4	59.56				84.22.14.95	-0.77	Procyon R.
	46.34.3.28								84.22.11.12		Procyon.
	23.47.57.32				24.90				61.35.30.50	+7.17	Pollux R.
	23.47.53.48								61.35.26.66		Pollux.
	68.16.53.79	30.200	56.6	55.4					105.29.29.29		☉.
	68.16.54.71								105.29.30.21		☉.
	68.16.54.00				2.25.12	52.22.58		15.24.68	105.29.29.50		☉.
	68.16.55.61								105.29.31.11		☉.
	68.16.54.58								105.29.30.08		☉.
	44.19.15.08	30.300	62.6	61.8	1.4.69	4.18	9.524	6.22	86.7.30.09		Venus.
0.77	38.31.13.88	30.260	62.6	64.0	45.65	5.27			76.3.8.74		☉.
	37.59.25.85				44.79	5.21		15.53.80	76.3.7.51		☉.
	36.1.11.23	30.220	62.6	65.2	41.56				73.49.1.07	+7.52	Aldebaran R.
	36.1.8.27								73.48.58.11		Aldebaran.
1.09	6.22.53.86	30.240	61.7	66.1	6.38				44.10.8.52	+13.96	Capella R.
	6.22.51.53								44.10.6.19		Capella.

Coincidence of Micrometer Wire with fixed Wire = 10', 103, 10', 111, 10', 112, 10', 116, 10', 121 at the five wires. From April 22 = 10', 104, 10', 107, 10', 111, 10', 114, 10', 120.

One Micrometer Revolution = 20", 809

Correction for Run = + 5", 4. From April 20 = + 1", 5.

Adopted Zenith Point = 112° 46' 0", 12. From April 25 = 112° 46' 2", 25

Assumed Co-latitude = 37° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  ".	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Apr. 27	Polaris SP. R. M.	332. 0	4. 17,3	6,2	10,8	13,0	14,1	12,8	7,907	+ 45,99			332. 4. 58,57	G.
	Polaris SP. ....	73. 25	2. 14,3	5,3	6,7	8,3	7,8	7,0					73. 27. 8,33	G.
	$\eta$ Ursæ Maj. R. M.	290. 40	1. 19,1	12,8	11,3	14,8	11,4	13,1	14,171	- 1. 24,72			290. 39. 49,10	G.
	$\eta$ Ursæ Majoris...	114. 50	2. 17,3	8,0	10,0	11,5	9,8	9,8					114. 52. 11,18	G.
	Mercury, center...	161. 50	3. 42,4	34,8	36,0	38,8	40,8	38,4					161. 53. 38,72	G.
	Venus N.L. ....	160. 35	1. 61,0	54,9	53,8	56,8	58,3	54,7					160. 36. 56,68	G.
Apr. 28	☉ S.L. M. ....	150. 55	2. 25,8	19,8	20,4	19,8	25,1	18,0	7,308	+ 58,49			150. 58. 20,09	G.
	☉ N.L. ....	150. 25	1. 34,8	29,4	28,2	30,2	34,8	26,7					150. 26. 30,77	G.
	Aldebaran R. M.	256. 45	0. 37,3	30,1	25,5	32,6	30,4	33,0	12,026	- 39,96			256. 44. 51,56	G.
	Aldebaran. ....	148. 45	2. 13,9	8,8	8,1	9,8	14,2	7,5					148. 47. 10,50	G.
	A Ursæ Min. R. M.	316. 55	2. 16,0	6,1	7,9	9,8	10,2	8,2	10,670	- 11,66			316. 56. 58,16	G.
	A Ursæ Minoris...	88. 35	0. 14,1	4,1	3,9	6,9	3,8	4,7					88. 35. 6,25	G.
	Venus N.L. ....	160. 5	3. 42,4	34,0	36,0	37,8	42,0	37,5					160. 8. 38,47	G.
Apr. 29	☉ N.L. M. ....	150. 5	3. 29,3	21,4	22,1	23,6	29,1	21,9	11,611	- 31,30			150. 7. 53,43	G.
	☉ S.L. ....	150. 35	4. 42,2	32,8	36,5	37,3	42,3	36,1					150. 39. 38,10	G.
Apr. 30	☉ S.L. M. ....	150. 20	1. 23,8	18,1	17,0	18,9	21,2	15,8	10,344	- 4,78			150. 21. 14,42	G.
	☉ N.L. ....	149. 45	4. 32,9	21,9	25,0	26,2	30,0	25,4					149. 49. 27,12	G.
	Capella R. M. ....	286. 20	3. 47,4	35,9	37,8	40,1	41,3	40,1	11,668	- 32,40			286. 23. 8,22	G.
	Capella. ....	119. 5	3. 62,1	51,3	54,4	55,3	57,1	53,0					119. 8. 55,73	G.
	(a) Mercury, center...	161. 25	4. 21,1	9,1	14,7	14,4	16,8	14,8					161. 29. 15,37	G.
	(a) Venus N.L. ....	159. 10	2. 21,9	12,0	15,8	16,3	16,1	14,8					159. 12. 16,27	G.
May 1	☉ N.L. M. ....	149. 30	1. 26,3	19,8	19,4	20,4	22,1	17,8	10,250	- 2,82			149. 31. 18,23	G.
	☉ S.L. ....	150. 0	2. 67,0	57,6	61,2	61,2	62,8	59,0					150. 3. 1,65	G.
	$\beta$ Ursæ Min. R. M.	315. 20	2. 32,0	23,1	23,8	25,6	23,4	23,4	13,858	- 1. 18,10			315. 21. 7,27	G.
	$\beta$ Ursæ Minoris...	90. 10	0. 68,8	58,1	59,2	61,0	58,3	59,6					90. 11. 0,90	G.
	$\beta$ Bootis R. M. ....	281. 35	0. 28,4	21,0	19,6	21,2	19,5	20,1	12,304	- 45,69			281. 34. 35,96	G.
	$\beta$ Bootis. ....	123. 55	2. 37,4	25,6	27,0	30,4	26,4	28,2					123. 57. 29,32	G.
	(a) Polaris R. M. ....	329. 0	1. 22,4	14,1	15,9	17,8	16,8	15,0	14,180	- 1. 24,82			328. 59. 52,26	G.
	Polaris. ....	76. 30	2. 22,0	10,8	13,2	15,5	14,3	13,5					76. 32. 15,02	G.
	(b) Mercury, center...	161. 15	1. 63,0	54,8	58,5	58,0	59,3	55,8					161. 16. 58,35	G.
	(a) Venus N.L. ....	158. 40	4. 20,0	8,8	15,7	16,0	17,0	13,9					158. 44. 15,48	G.
May 2	☉ S.L. M. ....	149. 40	4. 33,4	23,0	27,8	27,5	30,2	26,4	8,280	+ 38,29			149. 45. 6,61	G.
	☉ N.L. ....	149. 10	3. 26,8	17,8	20,0	20,0	21,8	18,4					149. 13. 21,00	G.
	Capella R. M. ....	286. 20	3. 43,2	31,0	33,0	35,1	36,3	35,8	11,481	- 28,51			286. 23. 7,44	G.
	Capella. ....	119. 5	3. 62,3	52,8	55,5	56,0	58,3	53,6					119. 8. 56,65	G.
May 3	Mercury, center...	160. 45	1. 34,8	28,9	26,8	30,2	32,2	28,5					160. 46. 30,32	G.
	Venus N.L. ....	157. 45	3. 40,0	30,3	33,4	35,0	38,5	34,8					157. 48. 35,55	G.
May 4	☉ S.L. M. ....	149. 5	4. 28,8	19,1	23,3	23,5	27,0	23,0	8,373	+ 36,35			149. 10. 0,73	G.
	☉ N.L. ....	148. 35	3. 21,8	12,4	15,3	15,8	19,1	15,4					148. 38. 16,83	G.
	$\epsilon$ Ursæ Maj. R. M.	297. 20	4. 19,4	10,0	11,3	15,4	13,3	13,4	14,188	- 1. 24,99			297. 22. 49,06	G.
	$\epsilon$ Ursæ Majoris...	108. 5	4. 25,8	10,1	18,7	15,7	16,9	16,1					108. 9. 17,47	G.
	$\epsilon$ Virginis R. M. ....	252. 20	3. 32,9	23,4	22,4	25,8	26,0	26,6	11,304	- 24,82			252. 23. 1,56	G.
	$\epsilon$ Virginis. ....	153. 5	3. 66,8	54,1	61,2	59,7	63,0	61,0					153. 9. 1,20	G.
	$\eta$ Ursæ Maj. R. M.	290. 35	4. 29,6	16,8	21,2	22,1	21,4	21,4	8,675	+ 30,05			290. 39. 52,35	G.
	$\eta$ Ursæ Majoris...	114. 50	2. 19,7	8,5	10,3	12,5	9,0	11,8					114. 52. 12,10	G.
	$\alpha$ Draconis R. M.	305. 40	2. 29,9	20,0	20,8	22,9	23,4	22,0	13,103	- 1. 2,36			305. 41. 20,94	G.
	$\alpha$ Draconis. ....	99. 50	0. 53,0	43,5	43,4	46,8	44,0	44,8					99. 50. 45,97	G.
	(c) Venus N.L. ....	157. 20	0. 64,1	59,0	57,8	62,0	62,0	58,2					157. 21. 0,58	G.
	$\theta$ Virginis. ....	169. 35	3. 47,1	36,0	38,8	41,3	43,2	41,4					169. 38. 41,52	G.
	Spica R. M. ....	230. 10	4. 13,0	1,1	4,1	5,4	8,1	6,9	6,866	+ 1. 7,79			230. 15. 14,47	G.
May 13	Spica. ....	175. 15	1. 53,0	45,1	44,8	47,0	47,7	46,9					175. 16. 47,52	G.
	$\gamma$ N.L. ....	178. 45	3. 45,0	34,5	37,8	39,6	41,4	39,2			-2	+ 7,40	178. 48. 47,20	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,984	+ 2,72	-1	+ 3,70	178. 48. 46,22	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,797	+ 6,64			178. 48. 46,44	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,623	+ 10,38	+1	- 3,70	178. 48. 46,48	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,423	+ 14,71	+2	- 7,40	178. 48. 47,11	G.

Coincidence at the middle wire and Runs taken May 4, 2<sup>h</sup>. (Temp. 62°.)Coincidences at the five wires taken May 25, 1<sup>h</sup>.

(a) Much unsteadiness.

(b) Very faint.

(c) Cloudy and very unsatisfactory.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	inch.	"	"	"	"	"	"	"	"	"
3.45	- 39. 18. 56.82	30,250	56.5	53.4	47.93				- 1. 32. 35.97	+ 2.71	Polaris SP. R.
	- 39. 18. 53.92								- 1. 32. 33.57		Polaris SP.
0.14	2. 6. 13.15				2.15				39. 53. 23.58	- 11.99	$\eta$ Ursæ Maj. R.
	2. 6. 8.93								39. 53. 19.36		$\eta$ Ursæ Majoris.
	49. 7. 36.47	30,226	59.8	61.7	1. 6.40	8.97			86. 55. 42.18		Mercury.
	47. 50. 54.43				1. 3.49	4.13	9.553	5.91	85. 39. 7.98		Venus.
	38. 12. 17.84	30,206	62.6	67.0	44.76	5.23			75. 44. 12.05		☉.
	37. 40. 28.52				43.92	5.17		15. 53.60	75. 44. 9.15		☉.
1.03	36. 1. 10.69	30,182	63.2	69.5	41.12				73. 49. 0.09	+ 7.52	Aldebaran R.
	36. 1. 8.25								73. 48. 57.65		Aldebaran.
2.21	- 24. 10. 55.91	30,164	57.0	55.4	26.11				13. 35. 46.26	- 12.35	$\alpha$ Ursæ Min. R.
	- 24. 10. 56.00								13. 35. 46.17		$\alpha$ Ursæ Minoris.
	47. 22. 36.22	30,238	63.6	63.6	1. 2.24	4.09	9.570	5.73	85. 10. 48.38		Venus.
	37. 21. 51.18	30,222	64.8	65.8	43.56	5.14			75. 25. 31.18		☉.
	37. 53. 35.85				44.39	5.20		15. 53.30	75. 25. 30.02		☉.
	37. 35. 12.17	30,232	63.0	63.6	44.11	5.16			75. 7. 6.30		☉.
	37. 3. 24.87				43.27	5.10		15. 53.10	75. 7. 4.42		☉.
1.98	6. 22. 54.03	30,240	63.6	63.5	6.42				44. 10. 8.73	+ 13.57	Capella R.
	6. 22. 53.18								44. 10. 8.18		Capella.
	48. 43. 13.12	30,288	55.0	53.0	1. 6.75	8.42			86. 31. 19.73		Mercury.
	46. 26. 14.02				1. 1.63	4.00	9.571	5.75	84. 14. 25.68		Venus.
	36. 45. 15.98	30,284	58.4	58.0	43.36	5.06			74. 48. 55.36		☉.
	37. 16. 59.40				44.20	5.12		15. 52.80	74. 48. 53.96		☉.
4.09	- 22. 35. 5.02	30,244	47.8	45.0	24.78				15. 11. 38.48	- 13.57	$\beta$ Ursæ Min. R.
	- 22. 35. 1.35								15. 11. 42.15		$\beta$ Ursæ Minoris.
2.64	11. 11. 26.29				11.79				48. 58. 46.36	- 16.88	$\beta$ Bootis R.
	11. 11. 27.07								48. 58. 47.14		$\beta$ Bootis.
3.64	- 36. 15. 50.01	30,230	54.7	55.4	42.69				1. 32. 35.58	+ 1.46	Polaris R.
	- 36. 15. 47.23								1. 32. 38.36		Polaris.
	48. 30. 56.10				1. 5.83	8.23			86. 19. 1.98		Mercury.
	45. 58. 13.23				1. 0.23	3.96	9.560	5.86	83. 46. 23.64		Venus.
	36. 59. 4.36	30,214	58.6	59.8	43.47	5.09			74. 30. 58.42		☉.
	36. 27. 18.75				42.64	5.02		15. 52.60	74. 30. 57.25		☉.
2.05	6. 22. 54.81	30,176	59.4	62.0	6.42				44. 10. 9.51	+ 13.31	Capella R.
	6. 22. 54.40								44. 10. 9.10		Capella.
	48. 0. 28.07	30,050	58.5	58.5	1. 3.88	7.86			85. 48. 32.37		Mercury.
	45. 2. 33.30				57.61	3.88	9.612	5.31	82. 50. 40.62		Venus.
	36. 23. 58.48	30,044	59.5	60.6	42.24	5.01			73. 55. 51.79		☉.
	35. 52. 14.58				41.44	4.95		15. 52.20	73. 55. 51.55		☉.
3.27	- 4. 36. 46.81	29,960	50.0	46.4	4.75				33. 10. 16.72	- 4.55	$\epsilon$ Ursæ Maj. R.
	- 4. 36. 44.78								33. 10. 18.75		$\epsilon$ Ursæ Majoris.
1.38	40. 23. 0.90				50.01				78. 10. 58.98	- 14.47	$\epsilon$ Virginis R.
	40. 22. 58.95								78. 10. 57.24		$\epsilon$ Virginis.
2.23	2. 6. 9.90				2.16				39. 53. 20.34	- 10.18	$\eta$ Ursæ Maj. R.
	2. 6. 9.85								39. 53. 20.29		$\eta$ Ursæ Majoris.
3.46	- 12. 55. 18.69				13.50				24. 51. 36.09	- 9.16	$\alpha$ Draconis R.
	- 12. 55. 16.28								24. 51. 38.50		$\alpha$ Draconis.
	44. 34. 58.33	29,846	61.4	59.7	56.18	3.84	9.589	5.56	82. 25. 4.51		Venus.
	56. 52. 39.27	29,594	54.5	53.0	1. 27.65				94. 41. 15.20	- 17.59	$\delta$ Virginis.
1.00	62. 30. 47.78				1. 49.74				100. 19. 45.80	- 18.88	Spica R.
	62. 30. 45.27								100. 19. 43.29		Spica
	66. 2. 44.95			51.9					103. 17. 10.00		☉.
	66. 2. 43.97								103. 17. 9.11		☉.
	66. 2. 44.19				2. 8.61	49. 44.71		14. 52.96	103. 17. 9.33		☉.
	66. 2. 44.25								103. 17. 9.37		☉.
	66. 2. 44.86								103. 17. 10.00		☉.

Coincidence of Micrometer Wire with fixed Wire 10', 111 at the middle wire. From April 30 - 10', 115. From May 13 - 10', 100, 10', 114, 10', 115, 10', 120, 10', 128 at the five wires.

One Micrometer Revolution = 20".868.

Correction for Run = + 1".5. From May 1 = + 1".8.

Adopted Zenith Point = 112' 47" 2".25.

Assumed Co-latitude = 37°. 47' 8".28.

Month and Day.	NAME OF STAR or PLANET.	Pointer. " "	Microscopes.						Microm. Reading. ".	Correction to Fixed Wire. " "	Interval of Obs. from Middle Wire.	Correction to Middle Wire. "	Concluded reading of Circle. " "	Observer.
			A	B	C	D	E	F						
May 13	$\alpha$ Virginis.....	182.15	1.49,0	39,2	39,8	41,9	43,5	41,9					182.16.42,65	G.
	$\eta$ Bootis R. M.....	259.45	0.64,7	56,2	54,8	57,4	58,0	56,7	10,848	-15,30			259.45.42,73	G.
	$\eta$ Bootis.....	145.45	1.27,0	17,0	17,7	19,9	21,3	20,2					145.46.20,60	G.
	$\alpha$ Draconis R. M.....	305.40	1.38,2	29,3	28,8	32,8	32,0	31,5	10,578	-9,66			305.41.22,52	G.
	$\alpha$ Draconis.....	99.50	0.49,1	39,3	39,2	42,3	41,4	41,3					99.50.42,15	G.
	$\kappa$ Virginis.....	174.25	3.62,3	49,3	55,1	54,9	58,4	55,4					174.28.56,13	G.
	A Ursæ Min. R. M.....	316.55	2.25,9	16,2	16,4	19,8	19,5	19,8	10,880	-15,96			316.57.3,77	G.
	(a) A Ursæ Minoris...	88.30	4.69,7	60,6	59,7	62,2	59,4	61,2					88.35.2,13	G.
May 14	(b) $\odot$ S.L. M.....	146.30	2.23,8	16,0	17,4	18,2	21,2	18,0	13,258	-1.5,07	+4	+1,51	146.31.15,67	G.
	$\theta$ Virginis.....	169.35	3.47,8	36,0	38,5	41,4	44,4	43,0					169.38.42,07	G.
	$\alpha$ Virginis.....	182.15	1.50,5	42,0	41,5	44,8	46,0	46,1			+4	-0,75	182.16.44,50	G.
	$\alpha$ Draconis R. M.....	305.40	2.22,9	13,1	14,4	16,8	16,0	17,5	12,720	-54,36			305.41.22,56	G.
	$\alpha$ Draconis.....	99.50	0.49,3	40,0	39,4	43,0	41,5	42,4					99.50.42,65	G.
	$\kappa$ Virginis.....	174.25	3.62,8	50,4	55,0	55,8	58,7	57,8					174.28.56,98	G.
	(c) Arcturus R. M.....	260.30	4.17,2	4,9	8,7	9,8	12,3	11,5	8,830	+26,81			260.34.37,79	G.
	Arcturus.....	144.55	2.31,3	20,5	22,5	23,9	25,7	25,6					144.57.25,07	G.
	) N.L.....	183.40	4.45,8	33,9	38,7	38,9	43,7	41,3			-2	+6,60	183.44.47,27	G.
	) N.L. M.....	...	...	...	...	...	...	...	9,973	+2,94	-1	+3,30	183.44.46,91	G.
	) N.L. M.....	...	...	...	...	...	...	...	9,838	+5,78			183.44.46,45	G.
	) N.L. M.....	...	...	...	...	...	...	...	9,692	+8,94	+1	-3,30	183.44.46,31	G.
	) N.L. M.....	...	...	...	...	...	...	...	9,568	+11,68	+2	-6,60	183.44.45,75	G.
	Jupiter N.L.....	179.15	4.45,5	31,3	37,0	37,7	42,3	40,2					179.19.39,28	C.
	Jupiter N.L.....	179.15	2.39,5	31,0	30,4	33,8	36,8	35,9					179.17.34,75	G.
	Venus N.L.....	152.30	0.7,0	2,9	0,1	2,6	4,8	1,2					152.30.3,10	G.
May 15	(d) $\odot$ S.L. M.....	146.5	0.21,2	16,5	13,4	17,5	18,8	16,3	16,278	-2.8,61			146.3.8,69	G.
	$\odot$ N.L.....	145.30	1.32,8	28,3	23,8	28,0	29,9	27,8					145.31.28,53	G.
	$\alpha$ Draconis R. M.....	305.40	1.26,0	17,8	16,2	20,9	21,0	20,9	9,924	+3,99			305.41.24,56	G.
	$\alpha$ Draconis.....	99.50	0.46,2	39,5	37,6	41,8	42,3	41,6					99.50.41,55	G.
	Arcturus R. M.....	260.35	0.41,0	35,9	31,4	35,2	36,4	36,7	12,880	-57,70			260.34.38,45	G.
	Arcturus.....	144.55	2.29,5	21,2	22,0	24,0	28,3	25,9					144.57.25,32	G.
	A Ursæ Min. R. M.....	316.55	2.31,8	23,3	22,9	26,0	27,9	27,2	11,101	-20,58			316.57.6,10	G.
	(a) A Ursæ Minoris...	88.30	4.67,8	60,0	58,4	60,8	61,6	60,8					88.35.1,57	G.
	$\beta$ Ursæ Min. R. M.....	315.20	1.23,9	17,3	15,6	18,5	18,0	18,9	10,385	-5,63			315.21.13,15	G.
	$\beta$ Ursæ Minoris...	90.10	0.59,2	51,2	49,9	52,8	52,0	52,0					90.10.52,92	G.
	$\pi$ Scorpii.....	190.30	3.44,7	35,2	36,9	37,4	42,7	40,3					190.33.39,78	G.
	(d) S.L. M.....	191.25	4.13,3	2,2	6,0	6,8	10,5	8,8	10,796	-14,53	-2	+3,88	191.28.57,57	G.
	) S.L. M.....	...	...	...	...	...	...	...	10,674	-11,68	-1	+1,94	191.28.58,48	G.
	) S.L. M.....	...	...	...	...	...	...	...	10,564	-9,37			191.28.58,85	G.
	) S.L. M.....	...	...	...	...	...	...	...	10,500	-7,93	+1	-1,94	191.28.58,35	G.
	) S.L. M.....	...	...	...	...	...	...	...	10,435	-6,41	+2	-3,88	191.28.57,93	G.
	$\sigma$ Scorpii.....	190.5	2.10,4	3,0	4,1	5,8	8,0	5,9					190.7.6,35	G.
May 26	Mercury, center M.....	148.40	4.46,1	34,5	38,7	40,2	43,2	42,0	10,833	-14,99			148.44.26,13	G.
	(e) Venus N.L.....	148.10	3.33,7	23,0	26,6	27,8	30,1	29,9					148.13.28,75	G.
May 27	(f) $\odot$ N.L.M.....	143.20	1.21,8	17,0	15,5	18,7	20,2	17,8	11,349	-25,75			143.20.52,83	G.
	$\odot$ S.L.....	143.50	2.30,0	24,9	22,7	25,7	28,0	26,0					143.52.26,38	G.
	Capella R. M.....	286.20	2.31,9	23,2	22,4	25,0	26,4	26,6	8,238	+39,17			286.23.5,25	G.
	Capella.....	119.5	3.63,0	54,5	56,8	58,3	59,7	57,2					119.8.58,53	G.
	Mercury, center...	148.5	0.39,3	33,8	33,2	33,8	37,9	34,4					148.5.35,43	G.
May 28	$\odot$ S.L. M.....	143.45	0.19,2	17,4	14,4	16,1	18,6	15,4	17,438	-2.32,82			143.42.44,05	G.
	$\odot$ N.L.....	143.10	1.9,7	6,0	4,0	5,4	9,1	5,0					143.11.6,58	G.
	Capella R. M.....	286.20	2.22,2	14,2	13,0	16,0	18,8	17,4	7,882	+46,60			286.23.3,65	G.
	Capella.....	119.5	3.62,7	54,6	55,4	58,2	61,5	56,9					119.8.58,42	G.
	Pollux R. M.....	268.55	2.22,2	13,1	15,2	15,3	18,0	17,1	7,846	+47,35			268.58.4,28	G.
	Pollux.....	136.30	3.61,5	51,5	53,1	56,7	58,2	58,7					136.33.56,82	G.
	$\zeta$ Ursæ Min. R. M.....	318.45	4.30,0	16,6	19,7	22,6	24,2	25,3	9,648	+9,75			318.49.35,08	G.
	$\zeta$ Ursæ Minoris...	86.40	2.37,7	26,8	25,8	29,4	29,7	31,1					86.42.30,20	G.

Runs taken May 25, 1<sup>h</sup>, and May 28, 1<sup>h</sup>. (Temp. 57° and 66°.)

(a) No correction for runs.

(b) Bad. Correction for change of N.P.D. = + 0",69.

(c) Flaring.

(d) Badly defined.

(e) Very unsteady.

(f) Very cloudy: seen but a few seconds.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1849.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	In. h.	"	"	" "	" "	"	" "	" " "	"	"
1,67	69.30.40,10	29,594	54,5	51,9	2.32,53				107.20.21,21	-20,02	$\alpha$ Virginis.
	33.0.19,52								70.48.5,12		$\eta$ Bootis R.
	33.0.18,35				37,32				70.48.3,95	-13,99	$\eta$ Bootis.
2,34	-12.55.20,27			51,4					24.51.34,81	-6,90	$\alpha$ Draconis R.
	-12.55.20,10				13,20				24.51.34,88		$\alpha$ Draconis.
	61.42.53,88				1.46,49				99.31.48,65	-18,80	$\kappa$ Virginis.
2,95	-24.11.1,52								13.35.40,93		A Ursæ Min. R.
	-24.11.0,12				25,83				13.35.42,33	-7,79	A Ursæ Minoris.
2,61	33.45.13,42	29,576	55,8	58,0	37,90	4,68		15.50,10	71.17.4,82		$\odot$ .
	56.52.39,82	29,470	56,0	55,0	1.26,94				91.41.15,04	-17,56	$\theta$ Virginis.
	69.30.42,25	29,458	54,8	53,0	2.31,50				107.20.22,03	-20,05	$\alpha$ Virginis.
1,43	-12.55.20,31	29,450	54,2	51,5					24.51.34,83	-6,62	$\alpha$ Draconis R.
	-12.55.19,60				13,14				24.51.35,54		$\alpha$ Draconis.
	61.42.54,73				1.45,95				99.31.48,96	-18,78	$\kappa$ Virginis.
	32.11.24,46								69.59.8,76		Arcturus R.
	32.11.22,82				36,02				69.59.7,12	-15,11	Arcturus.
	70.58.45,02					2.44,45	51.11,53	14.48,02	108.12.14,22		.
	70.58.44,66								108.12.13,86		.
	70.58.44,20								108.12.13,40		.
	70.58.44,06								108.12.13,26		.
	70.58.43,50								108.12.12,70		.
	66.33.37,03	29,448	52,8		2.11,20	1,78	8,014	21,93	104.23.16,66		Jupiter.
	66.31.32,50	29,304	54,2	52,4	2.10,11	1,78	8,036	21,70	104.21.10,81		Jupiter.
	39.44.0,85	29,280	55,3	55,2	46,92	3,40	9,587	5,55	77.31.58,20		Venus.
3,06	33.17.6,44	29,274	57,9	58,7	36,80	4,62		15.49,70	70.48.57,20		$\odot$ .
	32.45.26,28				36,07				70.48.55,77		$\odot$ .
	-12.55.22,31								24.51.32,90	-6,08	$\alpha$ Draconis R.
1,89	-12.55.20,70	29,272	53,6	51,0	13,07				24.51.34,51		$\alpha$ Draconis.
	32.11.23,80								69.59.7,92	-14,79	Arcturus R.
	32.11.23,07				35,84				69.59.7,19		Arcturus.
3,84	-24.11.3,85								13.35.38,86	-6,93	A Ursæ Min. R.
	24.11.0,68				25,57				13.35.42,03		A Ursæ Minoris.
	-22.35.10,90			50,0					15.11.33,64	-8,92	$\beta$ Ursæ Min. R.
3,04	-22.35.9,33				23,74				15.11.35,21		$\beta$ Ursæ Minoris.
	77.47.37,53					52.48,15		14.42,59	115.39.3,97	-16,43	$\kappa$ Scorpii.
	78.42.55,32		51,0	48,9	4.18,16				115.27.11,65		.
	78.42.56,23								115.27.12,56		.
	78.42.56,60								115.27.12,93		.
	78.42.56,10				4.38,77				115.27.12,43		.
	78.42.55,68								115.27.12,01		.
	77.21.4,10				4.9,24				115.12.21,62	-15,17	$\alpha$ Scorpii.
	35.58.23,88	29,950	59,7	56,2	41,83	4,21	9,582	5,58	73.16.9,78		Mercury.
	35.27.26,50				41,04				73.15.18,39		Venus.
1,89	30.34.50,58	29,940	57,7	58,3	33,91	4,27		15.47,80	68.38.16,30		$\odot$ .
	31.6.24,13				34,62				68.38.14,89		$\odot$ .
	6.22.57,00				6,41				44.10.11,69	+9,89	Capella R.
	6.22.56,28	29,820	63,7	62,0	10,20	4,09		15.47,60	44.10.10,97		Capella.
	35.19.33,18								73.7.17,57		Mercury.
1,04	30.36.41,80	29,814	63,3	64,3	33,85	4,32			68.28.32,01		$\odot$ .
	30.25.4,35				33,15				68.28.29,11		$\odot$ .
	6.22.58,60				6,30				44.10.13,18	+9,75	Capella R.
0,55	6.22.56,17	29,804	66,3	66,4	24,79				44.10.10,75	+6,60	Capella.
	23.47.57,97								61.35.31,04		Pollux R.
1,62	23.47.54,57	29,840	56,8	55,6	28,12				61.35.27,64		Pollux.
	-26.5.30,78								11.43.9,38	-9,04	$\zeta$ Ursæ Min. R.
	-26.5.32,05								11.43.8,11		$\zeta$ Ursæ Minoris.

Coincidence of Micrometer Wire with fixed Wire = 10",100, 10",114, 10",115, 10",120, 10",128, at the five wires.

One Micrometer Revolution = 20",868.

Correction for Runa = + 1",8. From May 15 = + 2",1. From Mercury on May 27 = + 1",5.

Adopted Zenith Point = 112°.46'.2",25.

Assumed Co-latitude = 37° 17' 8",28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.  ° ' "	Microscopes.						Microm. Reading  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.  ° ' "	Observer.		
			A	B	C	D	E	F								
			" "	" "	" "	" "	" "	" "								
May 28	η Draconis R. M...	302.25	2.25,9	17,5	16,9	20,7	18,8	20,8	15,458	-1.51,49			302.25.28,73	G.		
	η Draconis .....	103.5	1.42,8	33,9	30,2	35,6	34,2	35,8					103.6.35,50	G.		
	(a) Venus N.L. ....	147.30	1.52,8	45,6	44,0	47,2	50,4	47,7					147.31.48,03	G.		
	Mercury, center...	147.25	1.65,5	57,6	57,0	61,2	62,8	60,4					147.27.0,85	G.		
May 29	⊙ N.L. M. ....	143.0	1.23,2	17,8	14,8	18,0	21,3	18,7	8,815	+27,13			143.1.46,16	G.		
	⊙ S.L. ....	143.30	3.22,6	15,4	14,9	17,2	20,0	17,6					143.33.18,12	G.		
	Pollux R. M. ....	268.55	3.30,6	20,5	21,1	24,5	26,2	26,6	11,041	-19,33			268.58.5,75	G.		
	Pollux. ....	136.30	3.61,8	51,8	54,8	55,5	59,4	56,8					136.33.56,88	G.		
	η Ophiuchi R. M...	225.0	2.25,0	15,9	13,8	17,4	18,8	17,7	4,806	+1.51,04			225.4.9,43	G.		
	η Ophiuchi. ....	180.25	2.61,3	52,4	54,2	56,2	55,3	53,3					180.27.55,23	G.		
	ζ Draconis R. M...	306.25	3.27,4	16,6	19,0	21,6	21,5	21,6	12,698	-53,90			306.27.27,55	G.		
	ζ Draconis. ....	99.0	4.45,9	33,6	35,1	39,3	37,5	38,3					99.4.38,52	G.		
	(b) Venus N.L. ....	147.10	1.40,2	35,5	32,8	36,4	38,6	36,3					147.11.36,72	G.		
	Mercury, center...	146.45	3.51,8	43,7	44,5	48,1	48,8	48,0					146.48.47,67	G.		
May 30	⊙ S.L. M. ....	143.20	4.15,3	7,1	10,3	11,8	14,8	11,2	9,742	+7,78			143.24.19,75	G.		
	⊙ N.L. ....	142.50	2.48,6	41,5	40,7	44,3	46,1	43,4					142.52.44,23	G.		
May 31	(c) α Arietis R. M...	263.15	1.23,5	16,5	14,5	18,3	17,0	18,8	11,123	-21,12			263.15.57,05	G.		
	α Arietis. ....	142.15	1.9,0	3,9	3,2	4,9	6,2	3,8					142.16.5,22	G.		
	Venus N.L. ....	146.30	2.39,8	33,3	32,0	35,2	38,0	36,0					146.32.35,85	G.		
	Mercury, center...	145.30	4.17,2	9,0	9,0	12,4	16,1	12,7					145.34.12,95	G.		
June 1	⊙ N.L. M. ....	142.30	4.30,0	22,2	23,0	26,5	29,8	26,4	5,860	+1.28,70			142.35.55,23	G.		
	⊙ S.L. ....	143.5	2.30,2	25,2	22,7	27,2	29,0	26,8					143.7.26,97	G.		
June 2	Venus N.L. ....	145.55	0.35,2	28,3	28,3	29,9	30,4	29,9					145.55.30,35	G.		
June 3	(d) ⊙ N.L. ....	142.20	0.42,0	35,0	35,9	36,9	36,1	36,4	12,080	-41,09			142.20.37,08	G.		
	α Ophiuchi R. M...	253.15	0.29,1	23,1	19,3	24,2	23,2	23,0					253.14.42,58	G.		
	α Ophiuchi. ....	152.15	2.26,0	16,2	18,2	19,3	19,8	20,0					152.17.20,03	G.		
	(e) δ Aurigæ SP. R. M.	6.15	2.33,3	24,2	24,2	28,3	26,8	27,8	20,288	-3.32,38	+2	-0,84	6.13.55,17	G.		
	δ Aurigæ SP. ....	39.15	3.18,4	7,1	9,8	11,5	9,4	13,3					39.18.10,91	G.		
	June 5	Venus N.L. ....	145.0	3.39,7	32,0	32,2	35,7	39,4	35,2	8,238			+39,08			145.3.36,10
(f) Aldebaran R. M...		256.40	4.21,0	9,0	11,2	15,2	15,8	15,4	256.44.54,16							G.
Aldebaran. ....		148.45	2.15,0	6,5	7,8	9,0	11,8	7,5	148.47.9,85							G.
Mercury, center...		142.45	2.27,7	20,0	19,7	22,2	24,7	22,2	142.47.23,02							G.
June 6	⊙ S.L. M. ....	142.30	2.18,2	11,0	11,3	13,0	15,2	12,4	10,385	-5,71			142.32.8,06	G.		
	⊙ N.L. ....	142.0	0.38,0	33,0	30,9	34,0	37,7	33,3					142.0.34,55	G.		
	Capella R. M. ....	286.20	3.24,7	14,5	15,2	18,8	18,6	20,9	10,902	-16,51			286.23.2,64	G.		
	Capella. ....	119.5	3.67,2	56,0	59,0	59,1	62,8	58,7					119.9.0,92	G.		
June 7	η N.L. ....	165.35	1.28,0	23,8	22,4	25,8	28,0	25,4	9,932	+3,63	-2	+8,38	165.36.34,11	G.		
	η N.L. M. ....	...	...	...	...	...	...	...					165.36.33,55	G.		
	η N.L. M. ....	...	...	...	...	...	...	...			-1	+4,19	165.36.33,26	G.		
	η N.L. M. ....	...	...	...	...	...	...	...					165.36.33,83	G.		
	η N.L. M. ....	...	...	...	...	...	...	...	9,522	+12,29	+1	-4,19	165.36.33,27	G.		
	η N.L. M. ....	...	...	...	...	...	...	...					165.36.33,27	G.		
	γ Ursæ Maj. R. M.	295.5	3.20,8	10,2	10,9	14,7	15,2	15,3	10,028	+1,73			295.8.16,61	G.		
	γ Ursæ Majoris...	110.20	3.52,2	42,5	42,3	46,1	49,0	46,0			+1	+0,21	110.23.46,99	G.		
	η Virginis. ....	164.40	4.35,3	26,8	28,8	31,7	35,2	32,8	8,288	+38,04			164.44.32,28	G.		
	Venus N.L. ....	144.50	1.42,9	38,4	35,1	39,2	41,2	38,4					144.31.39,38	G.		
	(g) Aldebaran R. M...	256.40	4.21,0	10,5	12,2	15,9	17,1	17,9					256.44.54,29	G.		
	Aldebaran. ....	148.45	2.12,0	6,7	5,9	7,2	10,3	6,5					148.47.8,35	G.		
June 8	(h) ⊙ S.L. M. ....	142.20	1.12,9	11,9	6,9	10,2	13,4	8,2	11,345	-25,75			142.20.44,97	G.		
	⊙ N.L. ....	141.45	4.15,7	8,0	8,0	12,0	16,1	11,8					141.49.12,40	G.		
	Arcturus R. M...	260.30	4.31,4	20,0	22,8	26,2	29,0	27,5	9,432	+14,17			260.34.40,82	G.		
	Arcturus. ....	144.55	2.25,9	18,6	17,8	21,8	23,8	22,1					144.57.21,93	G.		

Coincidences at the five wires and Runs taken June 8, 2<sup>h</sup>. (Temp. 67° 5.)

- (a) Cloudy.  
 (b) Very cloudy.  
 (c) Faint.  
 (d) Accidentally on fixed wire: the other limb was hid by clouds.

- (e) Both observations unsatisfactory: star unsteady on account of its small altitude.  
 (f) Faint and doubtful.  
 (g) Very faint.  
 (h) Bad limbs.



Sec. of Apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	inch.	"	"	"	"	"	"	"	"	"
2,12	- 9. 39. 26.48	29,840	56,8	55,6	9,79				28. 7. 32,01	- 11,89	$\eta$ Draconis R.
	- 9. 39. 26,75								28. 7. 31,74		$\eta$ Draconis.
	34. 45. 45,78	30,010	62,6	60,3	39,75	2,95	9,650	4,87	72. 33. 35,73		Venus.
	34. 40. 58,60				39,63	3,98			72. 28. 42,53		Mercury.
1,32	30. 13. 43,91	30,028	61,6	61,7	33,35	4,23		15. 47,50	68. 19. 8,81	+ 6,56	$\odot$ .
	30. 47. 15,87				34,06	4,30			68. 19. 6,41		$\odot$ .
	23. 47. 56,30	30,100	62,1	61,5	25,28				61. 35. 30,06		Pollux R.
	23. 47. 54,63								61. 35. 28,19		Pollux.
2,33	67. 41. 52,82	30,222	54,8	52,8	2. 21,84				105. 31. 22,94	- 12,66	$\eta$ Ophiuchi R.
	67. 41. 52,98								105. 31. 23,10		$\eta$ Ophiuchi.
3,04	- 13. 41. 25,30				14,27				24. 5. 28,71	- 13,38	$\zeta$ Draconis R.
	- 13. 41. 23,73								24. 5. 30,28		$\zeta$ Draconis.
	34. 25. 34,47	30,288	62,3	61,6	39,51	2,92	9,603	5,36	72. 13. 24,70		Venus.
	34. 2. 45,42				38,96	3,87			71. 50. 28,79		Mercury.
1,14	30. 38. 17,50	30,290	62,3	62,6	34,09	4,28		15. 47,30	68. 10. 8,29	+ 5,80	$\odot$ .
	30. 6. 41,98				33,38	4,21			68. 10. 6,73		$\odot$ .
	29. 30. 5,20	30,096	62,2	63,7	32,29				67. 17. 45,77		$\alpha$ Arietis R.
	29. 30. 2,97								67. 17. 43,54		$\alpha$ Arietis.
1,31	33. 46. 33,60	30,092	70,7	68,1	37,82	2,86	9,562	5,74	71. 34. 22,58	+ 10,29	Venus.
	32. 48. 10,70				36,45	3,67			70. 35. 51,76		Mercury.
	29. 49. 52,98	30,078	68,7	69,9	32,30	4,18		15. 47,10	67. 53. 16,48		$\odot$ .
	30. 21. 24,72				32,99	4,24			67. 53. 14,65		$\odot$ .
3,04	33. 9. 28,10	29,996	57,8	56,5	37,69	2,80	9,640	4,93	70. 57. 16,20	- 11,96	Venus.
	29. 34. 34,83	30,000	57,7	57,7	32,67	4,14		15. 46,80	67. 37. 58,44		$\odot$ .
	39. 31. 19,67	30,100	54,6	48,4	48,54				77. 19. 16,49		$\alpha$ Ophiuchi R.
	39. 31. 17,78								77. 19. 14,60		$\alpha$ Ophiuchi.
2,01	- 73. 27. 52,92				3. 15,73				- 35. 44. 0,37	+ 8,68	$\delta$ Aurigæ SP. R.
	- 73. 27. 51,34								- 35. 43. 58,79		$\delta$ Aurigæ SP.
	32. 17. 33,85	29,860	66,7	64,0	35,75	2,72	9,597	5,37	70. 5. 20,53		Venus.
	36. 1. 8,09			64,6	41,08				73. 48. 57,45		Aldebaran R.
1,78	36. 1. 7,60				32,66	3,26			73. 48. 56,96	+ 8,49	Aldebaran.
	30. 1. 20,77								67. 48. 58,45		Mercury.
	29. 46. 5,81	29,850	63,4	65,0	32,29	4,16		15. 46,50	67. 17. 55,72		$\odot$ .
	29. 14. 32,30				31,61	4,10			67. 17. 54,59		$\odot$ .
1,80	6. 22. 59,61				6,32				44. 10. 14,21	+ 4,10	Capella R.
	6. 22. 58,67								44. 10. 13,27		Capella.
	52. 50. 31,86	29,954	63,4	64,0					90. 9. 42,62		$\gamma$ Ursæ Maj. R.
	52. 50. 31,30								90. 9. 42,06		$\gamma$ Ursæ Majoris.
1,32	52. 50. 31,01				1. 14,78	44. 28,80		15. 16,50	90. 9. 41,77	- 13,78	$\eta$ Virginis.
	52. 50. 31,58								90. 9. 42,34		Venus.
	52. 50. 31,02								90. 9. 41,78		Aldebaran R.
	- 2. 22. 14,36				2,35				35. 24. 51,57		Aldebaran.
1,38	- 2. 22. 13,26				1. 12,56				35. 24. 50,67	+ 8,80	$\gamma$ Ursæ Maj. R.
	51. 58. 30,03		63,5		35,13	2,67	9,603	5,31	89. 46. 50,87		$\gamma$ Ursæ Majoris.
	51. 45. 37,13	61,4	64,2						69. 53. 23,18		$\eta$ Virginis.
	36. 1. 7,96				41,25				73. 48. 57,49		Venus.
1,32	36. 1. 6,10								73. 48. 55,63	- 11,39	Aldebaran R.
	29. 34. 42,72	29,972	63,0	66,0	32,10	4,14		15. 46,30	67. 6. 32,66		$\odot$ .
	29. 3. 10,15				31,41	4,07			67. 6. 32,07		$\odot$ .
	32. 11. 21,43	29,940	63,4	62,0	35,85				69. 59. 5,56		Arcturus R.
1,38	32. 11. 19,68								69. 59. 3,81		Arcturus.

Coincidence of Micrometer Wire with fixed Wire = 107,115 at the middle wire. From May 31 = 107,098, 107,106, 107,111, 107,114, 107,119 at the five wires.

One Micrometer Revolution = 20",868

Correction for Run = + 1",5. From June 5 = + 3",4.

Adopted Zenith Point = 112°, 46' 2",25.

Assumed Co-latitude = 37° 47' 8",28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			"	"	"	"	"	"						
June 9	⊙ N.L. M.....	141.40	3.23,0	12,7	13,5	17,3	20,0	19,5	7,612	+52,16			141.44.10,19	G.
	⊙ S.L.....	142.15	0.41,8	36,5	32,1	39,0	38,7	37,5					142.15.37,67	G.
June 10	(a) ⊙ S.L. M.....	142.10	0.40,2	34,4	31,7	36,2	37,6	34,8	8,897	+25,33			142.11.1,21	G.
	⊙ N.L.....	141.35	4.34,1	21,0	24,9	27,4	30,8	27,8					141.39.28,17	G.
	(b) Jupiter S.L.....	178.30	4.35,4	22,8	26,5	28,8	32,8	29,8					178.34.29,85	G.
	ε Bootis R. M.....	268.15	3.24,8	15,1	16,8	20,0	20,9	20,2	9,308	+16,75			268.18.36,75	G.
	ε Bootis.....	137.10	3.35,0	22,0	23,8	26,2	28,2	27,8					137.13.27,55	G.
	β Ursæ Min. R. M.....	315.20	3.27,2	14,7	16,3	18,9	21,0	18,9	15,843	-1.59,62			315.21.20,25	G.
	β Ursæ Minoris...	90.10	0.54,4	43,9	42,7	46,6	44,3	45,3					90.10.46,28	G.
	η Draconis R. M.....	302.25	1.29,0	20,2	19,9	23,4	23,8	21,4	12,418	-48,15			302.25.34,95	G.
	η Draconis.....	103.5	1.40,3	28,9	27,2	32,6	30,3	30,9					103.6.31,87	G.
	A.S.C. 552 sp. R. M.....	354.25	2.23,0	11,8	13,9	16,3	17,0	16,8	8,957	+24,08			354.27.40,80	G.
	A.S.C. 552 SP.....	51.0	4.32,6	18,7	20,3	24,2	24,2	26,9					51.4.24,98	G.
	ζ Draconis R. M.....	306.25	3.20,7	7,7	10,5	13,8	16,0	14,2	12,168	-42,93			306.27.31,25	G.
	ζ Draconis.....	99.0	4.42,8	27,8	31,5	35,0	33,2	33,8					99.4.34,53	G.
June 13	Antares.....	190.55	3.56,0	41,2	46,2	48,8	48,9	49,2					190.58.48,82	G.
	(c) ⊙ S.L. M.....	192.50	4.36,2	21,8	27,0	29,4	29,8	31,1	8,635	+30,53	-2	+2,52	192.55.2,77	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	8,644	+30,51	-1	+1,26	192.55.1,49	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	8,610	+31,32			192.55.1,04	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	8,518	+33,24	+1	-1,26	192.55.1,70	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	8,446	+34,91	+2	-2,52	192.55.2,11	G.
	η Ophiuchi R. M.....	225.0	3.23,8	9,0	10,7	14,3	13,9	15,6	7,620	+51,99			225.4.6,91	G.
	η Ophiuchi.....	180.25	2.61,7	49,0	53,8	56,7	55,5	55,1					180.27.55,63	G.
	(d) θ Ophiuchi.....	189.40	4.60,8	52,5	51,3	55,0	54,1	53,8					189.44.54,58	G.
	(e) α Ophiuchi R. M.....	253.15	0.34,1	24,8	22,8	26,1	24,3	26,1	12,173	-43,03			253.14.43,39	G.
	α Ophiuchi.....	152.15	2.28,0	13,3	17,4	18,4	19,3	19,8					152.17.19,63	G.
	31 Camel. SP. R. M.....	0.40	2.34,8	22,2	24,0	27,6	25,8	27,8	16,733	-2.18,19			0.40.9,13	G.
	31 Camelop. SP...	44.50	1.64,7	53,3	52,8	56,5	53,7	57,9					44.51.56,70	G.
June 14	AOphiuchi (2 <sup>d</sup> star)	191.15	0.68,8	58,9	60,0	61,8	63,0	61,0					191.16.2,37	G.
	Saturn N.L.....	186.15	3.64,2	51,1	54,9	56,0	57,8	56,0					186.18.57,12	G.
	θ Ophiuchi.....	189.40	4.61,8	46,0	54,0	53,4	55,9	54,2					189.44.54,77	G.
	(f) ⊙ S.L. M.....	193.50	3.30,1	16,5	21,4	21,8	24,4	24,0	9,055	+21,76	-2	+0,42	193.53.45,60	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	9,088	+21,25	-1	+0,21	193.53.44,88	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	9,032	+22,52			193.53.45,94	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	9,020	+22,77	+1	-0,21	193.53.45,98	G.
	⊙ S.L. M.....	...	...	...	...	...	...	...	9,117	+20,91	+2	-0,42	193.53.43,91	G.
June 15	(g) ⊙ N.L. M.....	141.20	3.30,4	16,0	19,3	20,2	24,5	20,4	13,497	-1.10,57	+1½	+0,19	141.22.11,80	C.
	⊙ S.L.....	141.50	3.46,1	30,6	36,2	37,6	41,7	37,5			+4	+1,14	141.53.39,84	C.
	(h) Venus N.L.....	142.45	1.45,0	35,8	35,0	38,6	40,7	38,0					142.46.39,03	C.
June 16	⊙ S.L. M.....	141.50	3.60,6	47,7	51,9	54,1	59,6	53,3	17,127	-2.26,42			141.51.28,56	C.
	⊙ N.L.....	141.15	4.62,3	49,8	53,5	56,1	59,2	54,2					141.19.56,40	C.
	(i) Mercury, center...	139.55	1.17,4	10,4	8,3	12,3	13,7	9,6					139.56.12,08	C.
June 19	(k) ε Ursæ Min. R. M.....	327.5	1.67,4	55,5	62,7	60,3	59,8	60,9	6,787	+1.9,15		-15,93	327.7.54,43	C.
	ε Ursæ Minoris...	78.20	3.69,4	54,3	58,7	60,4	62,2	60,8				+10,74	78.24.11,96	C.
	α Lyrae R. M.....	279.5	4.58,8	43,9	48,5	50,3	50,4	50,9	5,038	+1.45,76	-1	-0,12	279.11.36,41	C.
	(l) α Lyrae.....	126.20	0.33,6	24,0	25,0	27,5	26,4	27,4			+1	+0,12	126.20.27,47	C.
	η Lyrae R. M.....	279.20	4.23,5	8,8	13,4	14,9	14,9	16,0	5,798	+1.29,90	-1	-0,12	279.25.45,30	C.
	η Lyrae.....	126.5	1.26,1	15,1	16,6	18,7	18,0	19,0			+1	+0,12	126.6.19,12	C.
	(m) Venus N.L.....	142.5	3.59,4	45,5	50,3	52,9	55,0	51,5			+1½	+0,31	142.8.52,99	C.
June 20	⊙ S.L. M.....	141.45	3.22,3	10,8	12,8	16,8	19,3	16,5	14,903	-1.40,02			141.46.36,60	C.
	⊙ N.L.....	141.15	0.13,4	5,7	3,5	7,1	7,3	5,2					141.15.7,03	C.
	Mercury, center...	140.0	4.16,8	4,5	7,2	10,3	12,4	11,1					140.4.10,65	C.
	(n) α Herculis R. M.....	255.5	1.66,0	54,8	55,6	57,9	58,9	58,4	5,918	+1.27,48			255.8.26,20	C.
	α Herculis.....	150.20	3.40,8	26,2	31,6	31,9	35,4	34,2			+1½	+0,79	150.23.34,36	C.

Coincidences at the five wires and Runs taken June 26, 2<sup>b</sup>. (Temp. 60°·5.)  
June 19, 12<sup>b</sup>. Molyneux fast on Hardy, 27°.

(a) S.L. without dark glass; not satisfactory. (b) Cloudy. (c) Very uneven and unsteady. (d) No correction for Runs. (e) Just before this observation the micrometer head was struck, but not violently; no alteration of coincidence reading. (f) Doubtful observation: the limb uneven and unsteady. (g) S.L. not good. Corrections for change of N.P.D. + 0"·01, and + 0"·10. (h) The Barometer and Thermometer readings being omitted, those of the next observation are taken. (i) Too much wind for reflexion observations. (k) Times of observation by Molyneux, 18.12.24 and 10.14.30. (l) Bisection not satisfactory. (m) Correction for change of N.P.D. = + 0"·17. (n) Mercury disturbed.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
	28. 58. 7.94	29.930	66.1	67.4	31.18	4.06		15. 46.20	67. 1. 29.54		☉.
	29. 29. 35.42				31.86	4.13			67. 1. 25.23		☉.
	29. 24. 58.96	29.904	64.0	64.0	31.95	4.12		15. 46.10	66. 56. 48.97		☉.
	28. 53. 25.92				31.27	4.05			66. 56. 47.52		☉.
	65. 48. 27.60	29.952	61.6	60.1	2. 6.61	1.70	12.052	20.25	103. 37. 20.54		Jupiter.
2.15	24. 27. 25.50								62. 14. 59.80		☉ Bootis R.
	24. 27. 25.50				26.02				62. 14. 59.60	- 9.06	☉ Bootis.
3.27	- 22. 35. 18.00				23.80				15. 11. 26.48		☉ Ursæ Min. R.
	- 22. 35. 15.97								15. 11. 28.51	- 2.17	☉ Ursæ Minoris.
3.41	- 9. 39. 32.70		59.8	58.0					28. 7. 25.80		☉ Draconis R.
	- 9. 39. 30.38				9.78				28. 7. 28.12	- 7.75	☉ Draconis.
2.89	- 61. 41. 38.55				1. 46.25				- 23. 56. 16.52	+ 6.99	A.S.C. 552 SP. R.
	- 61. 41. 37.27								- 23. 56. 15.24		A.S.C. 552 SP.
2.89	- 13. 41. 29.00			57.0	14.03				24. 5. 25.25	- 9.35	☉ Draconis R.
	- 13. 41. 27.72								24. 5. 26.53		☉ Draconis.
	78. 12. 46.57	30.032	60.8	56.0	4. 30.05				116. 4. 24.90	- 15.71	Antares.
	80. 9. 0.52								116. 53. 46.40		☉.
	80. 8. 59.24								116. 53. 45.12		☉.
	80. 8. 58.79				5. 21.12	53. 1.52		14. 42.00	116. 53. 44.67		☉.
	80. 8. 59.45								116. 53. 45.31		☉.
	80. 8. 59.86								116. 53. 45.74		☉.
1.27	67. 41. 55.34	30.020	58.4	54.3	2. 20.47				105. 31. 24.09	- 12.13	☉ Ophiuchi R.
	67. 41. 53.38								105. 31. 22.13		☉ Ophiuchi.
	76. 58. 52.33				4. 5.62				114. 50. 6.23	- 11.64	☉ Ophiuchi.
1.51	39. 31. 18.86			53.7	47.89				77. 19. 15.03	- 10.00	☉ Ophiuchi R.
	39. 31. 17.38								77. 19. 13.55		☉ Ophiuchi.
2.92	- 67. 51. 6.88				2. 22.04				- 30. 9. 20.64	+ 8.50	☉ Camel. SP. R.
	- 67. 54. 5.55								- 30. 9. 19.31		☉ Camelop. SP.
	78. 30. 0.12	29.890	58.8	54.4	4. 36.25				116. 21. 44.65	- 13.02	A Ophi. (2 <sup>d</sup> star).
	78. 32. 54.87				3. 42.97	0.91	9.203	9.48	111. 23. 24.69		Saturn.
	76. 58. 52.52				4. 4.52				114. 50. 5.32	- 11.65	☉ Ophiuchi.
	81. 7. 43.35			53.1					117. 52. 49.74		☉.
	81. 7. 42.63								117. 52. 49.02		☉.
	81. 7. 43.69				5. 54.00	53. 13.90		14. 42.89	117. 52. 50.08		☉.
	81. 7. 43.73								117. 52. 50.12		☉.
	81. 7. 41.66								117. 52. 48.05		☉.
	28. 36. 9.55	29.924	63.4	65.7	30.82	4.01		15. 45.70	66. 39. 30.34		☉.
	29. 7. 37.59				31.49	4.08			66. 39. 27.58		☉.
	30. 0. 36.78	29.772	65.8	67.4	32.37	2.51	9.654	4.77	67. 48. 19.69		Venus.
	29. 5. 26.31	29.772	65.8	67.4	31.18	4.07		15. 45.60	66. 37. 16.10		☉.
	28. 33. 54.15				30.51	4.00			66. 37. 14.54		☉.
	27. 10. 9.83	29.778	66.5	68.1	28.73	2.98			64. 57. 43.86		Mercury.
3.29	- 34. 21. 52.18	29.826	55.0	53.7	39.45				3. 24. 36.65		☉ Ursæ Min. R.
	- 34. 21. 50.29								3. 24. 38.54	8.60	☉ Ursæ Minoris.
1.94	13. 34. 25.84				13.94				51. 21. 18.06		☉ Lyrae R.
	13. 34. 25.24								51. 21. 17.44	7.79	☉ Lyrae.
2.21	13. 20. 16.95	29.838	54.0	53.5	13.70				51. 7. 38.93		☉ Lyrae R.
	13. 20. 16.87								51. 7. 38.85	7.58	☉ Lyrae.
	29. 22. 50.74	30.044	60.2	61.0	12.12	2.45	9.706	4.27	67. 10. 32.96		Venus.
	29. 0. 34.35	30.054	60.5	61.0	31.64	4.06		15. 45.30	66. 32. 24.91		☉.
	28. 29. 4.78				30.96	3.99			66. 32. 25.33		☉.
	27. 18. 9.40	30.064	61.5	63.4	29.53	3.08			65. 5. 42.93		Mercury.
0.28	37. 37. 36.05	30.148	56.0	53.5	44.26				75. 25. 29.29	- 9.05	☉ Herculis R.
	37. 37. 32.11								75. 25. 25.35		☉ Herculis.

Coincidence of Micrometer Wire with fixed Wire = 107,098, 107,106, 107,111, 107,111, 107,119 at the five wires. From June 19 = 107,101, 107,106, 107,110, 107,112, 107,118.

One Micrometer Revolution = 20.808.

Correction for Run = + 3.4. From June 19 = + 17.9.

Adopted Zenith Point = 112° 46' 2.25.

Assumed Co-latitude = 37° 47' 8".28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
June 20	(a) $\alpha$ Ophiuchi R. M.	253.10	2.55,3	43,2	44,4	48,1	47,7	47,7	4,500	+1.57,07			253.14.44,99	C.
	$\alpha$ Ophiuchi.....	152.15	2.24,7	10,2	14,7	16,0	16,5	17,6			+3	+0,30	152.17.17,07	C.
	$\eta$ Serpentis R. M.	237.30	5.18,7	3,0	7,3	10,2	12,0	12,6	0,885	+3.12,50			237.38.23,47	C.
	(b) $\eta$ Serpentis.....	167.50	3.45,6	32,1	36,7	38,7	41,5	40,0			+4 $\frac{1}{2}$	-0,16	167.53.39,17	C.
June 21	(c) Venus N.L.....	141.50	3.60,4	47,8	51,6	53,7	56,6	54,0					141.53.54,27	C.
June 22	(d) Polaris R. M....	329.0	0.41,3	32,1	29,5	36,0	35,2	35,5	12,428	-48,38		-0,49	328.59.46,10	C.
	Polaris.....	76.30	2.21,4	7,4	9,0	13,3	12,1	13,0				+6,63	76.32.19,46	C.
June 23	$\odot$ N.L. M.....	141.15	2.46,0	33,3	31,5	37,8	39,7	38,5	15,155	-1.45,27			141.15.53,20	C.
	$\odot$ S.L.....	141.45	2.27,9	14,5	17,2	20,2	23,3	21,4					141.47.20,90	C.
	(e) Mercury, center M.	140.35	0.64,7	54,6	51,5	58,4	59,0	56,6	10,208	-0,94	+2	-0,08	140.35.57,01	C.
	$\gg$ N.L. M.....	154.5	2.30,5	17,7	21,5	21,8	24,8	24,5	11,328	-25,61	-2	-8,74	154.6.49,27	C.
	$\gg$ N.L. M.....	...	...	...	...	...	...	...	11,733	-33,87			154.6.49,75	C.
	$\gg$ N.L. M.....	...	...	...	...	...	...	...	12,186	-43,16	+2	+8,74	154.6.49,20	C.
	(f) Polaris R. M....	329.0	0.36,3	26,2	25,5	29,6	31,0	30,0	10,934	-17,03		-26,20	328.59.46,57	C.
	Polaris.....	76.30	1.53,2	39,7	42,2	45,0	44,3	45,1				+37,40	76.32.22,43	C.
	(g) $\alpha$ Arietis R. M....	263.10	3.68,4	53,3	58,6	59,8	59,2	61,0	4,232	+2.2,76	+1 $\frac{1}{2}$	-0,14	263.16.2,92	C.
	$\alpha$ Arietis.....	142.15	0.68,6	57,5	61,0	61,2	62,2	60,6			+3	+0,57	142.16.2,49	C.
June 25	(h) $\delta$ Ursæ Min. R. M.	327.5	1.55,4	43,9	45,8	48,7	50,5	49,9	6,907	+1.6,83		-0,26	327.7.55,72	C.
	$\delta$ Ursæ Minoris...	78.20	4.18,9	3,7	9,0	10,0	12,5	10,8				+0,08	78.24.11,16	C.
	(i) $\beta$ Lyrae R. M....	273.40	2.47,0	36,0	36,5	39,7	40,2	39,6	5,441	+1.37,31	-1	-0,10	273.44.17,24	C.
	$\beta$ Lyrae.....	131.45	2.54,4	42,0	46,0	45,9	50,9	47,2			+1	+0,10	131.47.48,02	C.
June 29	(k) $\theta$ Herculis M....	142.30	0.61,5	57,3	61,7	58,2	58,0	59,9	8,118	+41,57			142.31.40,87	C.
	$\eta$ Lyrae R. M....	279.20	2.53,4	50,9	52,1	51,5	48,5	52,7	1,268	+3.4,43	-1	-0,12	279.25.55,46	C.
	$\eta$ Lyrae.....	126.5	1.24,6	20,0	23,5	22,4	18,7	24,7			+1	+0,12	126.6.22,25	C.
July 2	Venus N.L.....	141.20	0.18,3	14,0	16,4	14,2	13,6	15,3					141.20.15,27	C.
July 3	(l) $\odot$ N.L. M.....	141.45	0.31,4	27,7	31,0	28,3	29,5	30,0	11,040	-19,41			141.45.10,17	C.
	(m) $\odot$ S.L.....	142.15	1.40,0	36,8	39,5	37,0	38,0	37,8			+2	+0,12	142.16.38,10	C.
	Mercury, center ..	144.15	0.8,5	6,5	8,5	6,4	2,8	6,3					144.15.6,48	C.
July 6	$\eta$ Herculis R. M..	279.45	1.12,4	8,4	11,5	11,1	5,5	11,0	6,911	+1.6,65	-1	-0,13	279.47.16,30	C.
	(n) $\eta$ Herculis.....	125.40	4.61,9	58,3	62,9	60,7	57,3	59,7			+1	+0,13	125.45.0,26	C.
	(o) Saturn N.L.....	186.10	3.26,7	21,9	24,8	22,0	20,9	24,4					186.13.22,90	C.
	(p) $\delta$ Ursæ Min. R. M.	327.5	1.22,8	19,1	21,2	20,0	15,4	22,7	4,687	+1.53,13		-7,16	327.8.5,95	C.
	$\delta$ Ursæ Minoris...	78.20	4.15,9	9,9	13,6	9,4	7,4	12,0				+3,63	78.24.14,33	C.
	(q) Pallas M.....	142.50	1.22,3	16,5	21,3	16,9	15,6	20,6	11,639	-31,95			142.50.46,72	C.
	(r) $\eta$ Lyrae R. M....	279.20	1.21,7	18,3	20,1	17,0	13,2	19,4	5,315	+1.40,22	+2	-0,48	279.25.57,34	C.
	$\eta$ Lyrae.....	126.5	1.24,6	18,9	23,3	19,6	15,1	21,4			+3	+1,10	126.6.21,37	C.
	(s) Venus N.L.....	141.25	3.55,0	50,5	53,5	49,9	48,5	50,9					141.28.50,77	C.
July 7	$\odot$ S.L. M.....	142.40	1.20,5	17,8	19,7	17,8	16,1	18,4	15,038	-1.42,88			142.39.35,29	C.
	$\odot$ N.L.....	142.5	3.8,0	3,9	8,0	5,0	4,5	4,5					142.8.5,15	C.
	(t) $\gg$ N.L.....	180.50	4.24,0	20,8	23,3	21,5	18,5	24,0			+ $\frac{1}{2}$	-1,79	180.54.19,53	C.
July 8	$\odot$ S.L. M.....	142.45	3.18,7	14,0	17,4	15,8	13,2	15,2	15,652	-1.55,68			142.46.19,19	C.
	$\odot$ N.L.....	142.10	4.50,5	47,4	52,0	47,8	50,5	48,4					142.14.48,67	C.
	(u) $\delta$ Ursæ Min. R. M.	327.5	1.39,0	34,9	37,2	35,9	32,7	37,6	5,836	+1.29,14		-0,71	327.8.4,40	C.
	$\delta$ Ursæ Minoris...	78.20	4.16,2	9,9	13,3	10,1	8,9	12,8				+2,13	78.24.13,25	C.
	$\epsilon$ Aquilæ R. M....	255.20	2.65,2	60,9	63,5	60,0	58,5	61,8	3,379	-2.20,43			255.25.21,60	C.
	$\epsilon$ Aquilæ.....	150.5	1.57,6	51,8	57,6	53,2	51,4	53,7			+3	+0,36	150.6.54,28	C.
July 9	$\odot$ N.L. M.....	142.20	2.47,5	45,5	48,3	44,5	45,5	45,6	12,554	-51,05			142.21.54,67	C.
	$\odot$ S.L.....	142.50	3.26,9	23,4	26,2	23,3	24,7	25,5					142.53.24,45	C.
	Pallas.....	143.0	3.58,6	54,5	59,4	53,2	54,2	56,5					143.3.55,40	C.
	Ceres.....	194.20	3.55,6	51,1	55,2	50,9	48,6	52,8					194.23.51,75	C.

June 29, 1840, the Circle was taken from the wall and its axis was cleaned; the Run of microscope B was diminished, and the microscopes were adjusted.

Runs taken June 29, 8<sup>h</sup>. (Temp. 66°.)

June 22, 12<sup>h</sup>, 8<sup>h</sup>. Molyneux fast on Hardy, 21<sup>h</sup>; June 23, 10<sup>h</sup>, 11<sup>h</sup>; June 25, 13<sup>h</sup>, 1<sup>h</sup>, 5<sup>h</sup>. After the comparison on June 19, Molyneux was stopped and cleaned, and after each of those on June 22 and 23 it was stopped to be regulated. July 6, 11<sup>h</sup>, Molyneux fast on Hardy, 1<sup>h</sup>, 16<sup>h</sup>; July 8, 11<sup>h</sup>, 1<sup>h</sup>, 19<sup>h</sup>.

(a) Mercury disturbed. (b) Delayed by clouds. (c) Cloudy and very doubtful. (d) Times by Molyneux, 1.4.0 and 1.12.10. (e) Extremely unsteady. The tangent screw not acting far enough, the planet's centre was placed mid-way between the wires, and the correction to fixed wire is calculated accordingly. Correction for change of N.P.D. = 0'.35. (f) Unsteady; wind also annoying. Times by Molyneux, 1.23.45 and 1.28.4. (g) The reading of microscope F has been increased by its Run, viz. +1'.2, the preceding division having been bisected. (h) Times by Molyneux, 18.23.5 and 18.23.23. (i) The reading of micrometer B having been omitted was supplied by replacing the circle. (j) Pallas preceded this star a short interval, but could not be taken. (k) Without dark glass; doubtful. (l) Correction for change of N.P.D. = 0'.13. (m) No correction for Run. (n) The planet's centre was placed mid-way between the wires, but the S.L. being hid by the ring, the vertical diameter could not be accurately measured. (o) Times by Molyneux 18.16.33 and 18.18.50. (p) A preceding star, mistaken for Pallas, was bisected by fixed wire. (q) Mercury waving. (r) Very unsteady. (s) Seen but for an instant; very cloudy and doubtful. (t) Times by Molyneux 18.28.32 and 18.28.40.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
-	-	Inch.	-	-	-	-	-	-	-	-	-
1,08	39.31.17,26	30,148	56,2	53,7	48,09				77.19.13,63		α Ophiuchi R.
	39.31.14,82								77.19.11,19	- 8,67	
1,32	55.7.38,78		55,5	54,0	1.23,46				92.56.10,52		η Serpentis R.
	55.7.36,92								92.56.8,66	- 7,18	
	29.7.52,02	29,696	62,3	62,7	31,44	2,43	9,672	4,57	66.55.33,88		Venus.
2,78	-36.13.43,85	29,618	56,6	56,2	41,76				1.32.42,67		Polaris R.
	-36.13.42,79								1.32.43,73	- 3,34	Polaris.
	28.29.50,95	29,600	59,0	60,0	30,70	3,99		15.45,20	66.33.11,14		☉.
	29.1.18,65				31,37	4,06			66.33.9,04		☉.
	27.49.54,76	29,592	59,9	60,5	29,81	3,23			65.37.29,62		Mercury.
	41.20.47,02	29,698	52,5	50,4					78.46.10,54		).
	41.20.47,50				50,87	38.36,49		16.0,86	78.46.11,02		).
	41.20.46,95								78.46.10,47		).
4,50	-36.13.44,32		52,4	50,7	42,34				1.32.41,62		Polaris R.
	-36.13.39,82								1.32.46,12	- 5,34	Polaris.
2,71	29.29.59,33	29,704	53,0	52,0	32,62				67.17.40,23		α Arietis R.
	29.30.0,24								67.17.41,14	+ 8,36	α Arietis.
3,44	-34.21.53,47	29,940	52,5	51,2	39,80				3.24.35,01		δ Ursæ Min. R.
	-34.21.51,09								3.34.37,39	- 6,70	δ Ursæ Minoris.
2,63	19.1.45,01				20,08				56.49.13,37		β Lyrae R.
	19.1.45,77								56.49.14,13	- 5,66	β Lyrae.
	29.45.32,04	29,958	60,0	58,8	32,79				67.33.13,11		O Herculis.
8,86	13.20.13,37				13,60				51.7.35,25	- 4,05	η Lyrae R.
	13.20.13,42								51.7.35,30	- 4,40	η Lyrae.
	28.34.6,44	29,392	59,7	60,6	30,53	2,36	9,652	4,78	66.21.47,67		Venus.
	28.59.1,34	29,400	59,9	59,5	31,14	4,06		15.45,00	67.2.21,70		☉.
	29.30.29,27				31,82	4,12			67.2.20,25		☉.
	31.28.57,65	29,396	59,7	61,0	34,32	4,11			69.16.36,14		Mercury.
8,28	12.58.52,53	29,362	57,0	53,7	13,10				50.46.13,91		η Herculis R.
	12.58.51,43								50.46.12,81	- 3,06	η Herculis.
	73.27.14,07	29,352	54,9	52,7	3.9,07	0,90	9,214	9,33	111.17.39,85		Saturn.
10,14	-34.21.57,12	29,348	53,4	51,8	38,97				3.24.32,19		δ Ursæ Min. R.
	-34.21.54,50								3.24.34,81	- 3,10	δ Ursæ Minoris.
	30.4.37,89	29,342	52,6	51,4	33,03	1,66			67.52.17,54		Pallas.
9,36	13.20.11,49				13,52				51.7.33,29		η Lyrae R.
	13.20.12,54								51.7.34,34	- 2,18	η Lyrae.
	28.42.41,94	29,548	58,5	61,2	30,82	2,37	9,618	5,12	66.30.23,79		Venus.
	29.53.25,46	29,548	58,5	61,2	32,37	4,17		15.45,10	67.25.17,84		☉.
	29.21.56,32				31,68	4,11			67.25.17,27		☉.
	68.8.10,70	29,626	59,2	59,4	2.20,19	50.45,45		14.37,05	105.21.50,77		).
	30.0.10,36	29,686	60,4	61,4	32,65	4,19		15.45,10	67.32.2,00		☉.
	29.28.39,84				31,96	4,12			67.32.1,06		☉.
8,83	-34.21.55,57	29,616	55,8	53,4	39,19				3.24.33,52		δ Ursæ Min. R.
	-34.21.55,58								3.24.33,51	- 2,50	δ Ursæ Minoris.
7,94	37.20.47,23				43,73				75.8.39,24		ε Aquilæ R.
	37.20.45,45								75.8.37,46	- 1,64	ε Aquilæ.
	29.33.45,84	29,800	59,8	62,2	32,19	4,14		15.45,20	67.39.7,37		☉.
	30.7.15,62				32,88	4,20			67.39.7,38		☉.
	30.17.46,57	29,888	54,3	53,0	33,83	1,67			68.5.27,01		Pallas.
	81.57.42,92	29,876	52,3	51,0	6.16,06	4,57			119.31.2,89		Ceres.

Coincidence of Micrometer Wire with fixed Wire - 10', 101, 10', 106, 10', 110, 10', 112, 10', 118 at the five wires. From

July 6 - 10', 99, 10', 105, 10', 108, 10', 112, 10', 118. (Adopted according to a rule explained in the Introduction.)

One Micrometer Revolution - 20", 868.

Correction for Run - 1". From June 29 - 5", 9. From July 6 - 4", 8.

Adopted Zenith Point - 112° 46' 25". From June 29 - 112° 46' 8", 83.

Assumed Co-latitude - 37° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			"	"	"	"	"	"						
July 9	$\pi^2$ U. Maj. SP. R. M.	355.35	3.58,5	55,0	59,0	56,4	53,2	57,7	11,095	-20,66	-1	+0,32	355.38.35,66	C.
	$\pi^2$ Ursæ Majoris SP.	49.50	3.50,1	45,2	46,2	44,2	41,6	47,6			+2	-1,29	49.53.43,93	C.
	$\alpha$ Equulei R. M.	245.5	1.47,0	42,8	44,0	42,5	38,7	44,6	1,032	+3.9,40			245.9.52,40	C.
	$\alpha$ Equulei.....	160.20	2.29,0	24,1	27,4	24,3	23,7	27,7			+3	+0,12	160.22.25,77	C.
July 10	(a) $\delta$ N.L. M.....	191.50	3.56,0	52,5	53,9	52,5	50,9	53,5	8,275	+38,04	-2	+3,12	191.54.33,76	C.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	8,185	+40,13			191.54.32,73	C.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	8,011	+43,98	+2	-3,12	191.54.33,46	C.
	$\tau$ Scorpii.....	192.45	1.40,5	37,2	42,5	37,5	33,6	38,2					192.46.38,00	C.
	$\eta$ Serpentis R. M.	237.35	1.24,7	18,7	20,0	19,5	15,7	21,8	3,748	+2.12,66	-1	+0,01	237.38.32,52	C.
	$\eta$ Serpentis.....	167.50	3.48,5	45,3	48,0	45,0	44,4	47,0			+1½	-0,02	167.53.45,75	C.
	Pallas.....	143.5	3.57,0	51,9	57,4	51,6	50,6	55,3					143.8.53,33	C.
	(b) Capella R. M.	286.20	2.38,5	33,0	34,1	33,2	29,4	34,8	8,515	+33,18	-1	-0,16	286.23.6,44	C.
	Capella.....	119.5	1.16,2	10,5	15,0	10,6	8,7	11,0			+1½	+0,35	119.9.11,68	C.
	(c) $\beta$ Tauri R. M.	268.55	1.39,0	35,2	38,2	35,6	32,5	37,7	3,910	+2.9,59	+3	-0,73	269.1.44,49	C.
	$\beta$ Tauri.....	136.30	0.33,0	29,3	32,4	29,6	27,5	30,5			+4½	+1,65	136.30.31,95	C.
	(d) $\odot$ N.L. M.....	142.35	3.62,7	59,4	63,0	58,4	59,5	59,2	14,940	-1.40,83			142.37.18,90	C.
	$\odot$ S.L. M.....	143.10	0.28,9	27,2	28,9	27,3	26,8	28,3	14,940	-1.40,83			143.8.47,00	C.
	(e) Mercury, center...	148.15	0.60,5	57,3	60,1	58,0	56,3	57,5			-2	+0,94	148.15.59,06	C.
	(f) Jupiter N.L.....	178.20	4.42,2	41,5	42,8	41,5	40,5	42,7			+2	-0,15	178.24.40,97	C.
	$\tau$ Scorpii.....	192.45	1.37,5	35,8	35,8	32,7	32,4	36,5					192.46.35,37	C.
	$\lambda$ Ophiuchi R. M.	250.10	1.16,0	12,9	13,4	12,6	10,0	14,3	8,449	+34,56	-1	-0,05	250.11.47,53	C.
July 11	$\lambda$ Ophiuchi.....	155.20	0.30,0	27,2	29,0	27,3	25,2	29,2			+2	+0,11	155.20.28,01	C.
	Saturn N.L.....	186.10	2.23,5	20,4	21,8	20,7	19,0	22,3					186.12.20,90	C.
	(g) $\delta$ N.L. M.....	193.15	2.33,5	30,6	31,5	30,5	28,4	32,5	8,436	+34,68	-2	+1,10	193.18.6,55	C.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	8,480	+33,98			193.18.4,75	C.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	8,490	+33,98	+2	-1,10	193.18.3,65	C.
	$\epsilon^2$ Ophiuchi.....	188.45	0.19,0	16,9	19,3	17,8	15,2	18,2					188.45.17,68	C.
	(h) A.S.C. 2052.....	195.5	1.9,5	7,1	10,2	8,3	5,2	8,5			+3	-0,79	195.6.7,13	C.
	$\eta$ Serpentis R. M.	237.35	1.19,9	16,9	16,6	17,0	13,7	18,5	3,638	+2.14,96	-1	0,00	237.38.31,84	C.
	$\eta$ Serpentis.....	167.50	3.46,5	43,7	46,6	43,8	44,3	45,6					167.53.44,48	C.
	$\alpha$ Lyrae R. M.	279.5	4.25,0	22,5	22,7	21,3	17,5	23,6	2,952	+2.29,27	-1	-0,12	279.11.50,57	C.
	$\alpha$ Lyrae.....	126.20	0.29,0	25,9	29,3	26,5	23,2	27,9			+1	+0,12	126.20.27,00	C.
	(i) Pallas.....	143.10	4.10,4	6,1	10,0	5,8	6,8	8,8			+4½	+0,92	143.14.8,24	C.
	(k) A.S.C. 874. sp. R.M.	337.50	0.43,0	40,4	42,7	42,3	38,3	42,7	10,846	-15,41			337.50.26,04	C.
	A.S.C. 874. SP....	67.40	1.56,8	52,8	55,3	52,7	49,6	54,7			+2	-3,73	67.41.49,62	C.
July 13	Jupiter S.L.....	178.25	1.35,6	33,0	35,0	34,1	30,7	35,2					178.26.33,70	C.
	(l) $\beta$ Ursæ Min. R. M.	315.20	0.43,5	39,4	41,1	39,9	35,7	41,2	7,642	+51,49	-1	-0,55	315.21.30,96	C.
	(m) $\beta$ Ursæ Min. M.	90.5	4.60,4	55,5	59,3	56,2	51,1	56,5	7,642	+51,49			90.10.47,99	C.
	$\xi^2$ Libræ R. M.	229.45	1.35,5	30,4	30,8	29,0	27,1	32,7	1,825	+2.52,76	-2	+0,12	229.49.23,56	C.
	$\xi^2$ Libræ.....	175.40	2.56,1	52,0	56,2	53,6	50,4	55,2			+2	-0,12	175.42.53,33	C.
	(n) Antares R. M.	214.30	4.46,0	40,6	42,4	39,0	37,8	42,4	13,937	-1.19,75	+1	+0,07	214.33.20,94	C.
	Antares.....	190.55	3.61,6	55,8	60,2	56,7	51,1	58,7			+4½	-1,32	190.58.55,90	C.
	(o) $\alpha$ Ophiuchi R. M.	253.10	3.31,5	25,3	28,3	25,6	22,0	29,3	5,835	+1.29,44	+1½	-0,10	253.14.55,79	C.
	$\alpha$ Ophiuchi.....	152.15	2.26,0	20,4	24,4	21,5	17,6	25,0			+4½	+0,69	152.17.22,79	C.
	(n) $\lambda$ Sagittarii R. M.	215.5	3.61,4	56,5	59,8	56,2	53,9	59,3	14,483	-1.31,23			215.7.25,99	C.
	$\lambda$ Sagittarii.....	190.20	4.59,3	53,8	58,3	54,2	52,5	56,6			+3	-0,65	190.24.54,53	C.
	(p) Pallas.....	143.20	5.16,8	11,4	16,5	11,0	9,5	15,6					143.25.12,63	C.
	(q) $\delta$ S.L. M.....	192.25	2.47,6	43,7	46,6	44,4	40,9	45,8			-1	-1,61	192.27.42,79	C.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	10,354	-4,99	+1	+1,61	192.27.41,02	C.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	10,483	-7,47	+3	+4,83	192.27.41,76	C.
July 14	$\chi^1$ Sagittarii.....	189.40	3.37,6	33,7	37,0	34,2	31,5	36,9					189.43.34,58	C.
	$h^2$ Sagittarii.....	190.5	3.34,1	30,6	32,5	30,2	27,5	32,5					190.8.30,67	C.
	Ceres.....	194.45	0.31,6	27,8	29,3	27,1	23,4	28,8					194.45.27,92	C.
	$h^2$ Sagittarii.....	190.5	3.32,7	31,2	31,8	29,8	29,0	31,3					190.8.30,40	G.

Conclusions at the five wires taken July 20, 1h.

(a) Ragged and waving. (b) Very unsteady. (c) Doubtful from being faint. (d) Very ragged limbs. S.L. by mistake on micrometer wire. (e) Clouded at middle wire. Correction for change of N.P.D. = +0,76. (f) Delayed by clouds. Correction for change of N.P.D. = -0,01. (g) Very rough and waving. The two limbs appeared equally illumined, but the circle was not set for observing both. By calculation the correction to N.L. for defect of illumination = 0,11, which is applied to the Geocentric N.P.D. of centre. (h) Dancing. (i) Extremely faint. I could not bisect it till it was just leaving the field, and then very doubtfully. Correction for change of N.P.D. = 0,30. (k) The position of the circle is taken into account in calculating the correction to fixed wire for this slow moving star. It is supposed that the star passed the middle wire 20" before it passed the meridian. (l) Steady. (m) No correction for Run. (n) Too low for reflexion observations. The definition of the stars was not bad, but the motion was extraordinary, much greater than in the direct observations. (o) Unsatisfactory bisections. (p) Good bisection. (q) Extremely rough, but more fully illumined than N.L.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	"	"	" "	"	"	"
9.80	-62.52.26.83	29.872	52.6	51.4	1.52.86				-25.7.11.41	+4.93	$\pi^1$ U. Maj. SP. R.
	-62.52.24.90								-25.7.9.48		$\pi^2$ Ursa Maj. SP.
9.00	47.36.16.43	29.870	52.4	51.0	1.3.57				85.24.28.28	+6.86	$\alpha$ Equulei R.
	47.36.16.94								85.24.28.79		$\alpha$ Equulei.
	79.8.24.93	29.850	56.6	55.4					116.22.10.90		$\gamma$
	79.8.23.90				4.51.04	52.57.03		14.43.68	116.22.9.87		$\gamma$
	79.8.24.63								116.22.10.60		$\gamma$
	80.0.20.17				5.15.25				117.52.52.70	-16.46	$\tau$ Scorpii.
9.14	55.7.36.31	29.854	55.0	53.2	1.22.78				92.56.7.37	-4.85	$\eta$ Serpentis R.
	55.7.36.92								92.56.7.98		$\eta$ Serpentis.
	80.22.44.50		54.4	52.4	33.95	1.67			68.10.25.06		Pallas.
9.06	6.23.2.39	29.876	57.3	58.4	6.41				44.10.17.08	+5.01	Capella R.
	6.23.2.85								44.10.17.54		Capella.
8.22	23.44.21.34				25.18				61.31.57.80	+7.82	$\beta$ Tauri R.
	23.44.23.12								61.31.56.58		$\beta$ Tauri.
	29.51.10.07	29.886	59.4	60.1	32.76	4.17			67.54.32.14		$\odot$ .
	30.22.38.17				33.46	4.24		15.45.20	67.54.30.47		$\odot$ .
	55.29.50.23	29.878	60.0	60.5	40.65	5.17			73.17.33.99		Mercury.
	65.38.52.14	29.880	59.1	58.9	2.5.64	1.57	8.453	17.37	103.28.1.86		Jupiter.
	80.0.26.54	29.884	56.5	55.1	5.15.80				117.52.50.62	-16.50	$\tau$ Scorpii.
7.77	42.34.21.50	29.888	56.0	53.6	53.09				80.22.22.67	-6.82	$\alpha$ Ophiuchi R.
	42.34.19.18								80.22.20.55		$\alpha$ Ophiuchi.
	73.26.12.07				3.11.93	0.89	9.292	8.52	111.16.30.91		Saturn.
	80.51.57.72								117.46.11.13		$\gamma$ .
	80.51.55.92				5.33.50	53.12.22		14.43.99	117.46.9.33		$\gamma$ .
	80.51.54.82		54.0						117.46.8.23		$\gamma$ .
	75.59.8.85				3.47.31				113.50.1.42	-11.13	$\epsilon$ Ophiuchi.
	82.19.58.50		54.9	53.7	6.45.52				120.13.52.10	-9.53	A.S.C. 2052.
8.16	55.7.36.99			53.2	1.22.88				92.56.8.15	-4.74	$\eta$ Serpentis R.
	55.7.35.65								92.56.6.81		$\eta$ Serpentis.
8.79	13.54.18.26		54.2	52.7	13.99				51.21.40.53	-1.11	$\alpha$ Lyrae R.
	13.54.18.17								51.21.40.44		$\alpha$ Lyrae.
	30.27.59.41				34.08	1.68			68.15.40.99		Pallas.
7.83	-45.4.17.21	29.892	53.6	52.5	58.07				-7.18.7.00	+2.70	A.S.C. 874. sp. n.
	-45.4.19.21								-7.18.9.00		A.S.C. 874. SP.
	65.40.24.87	30.070	55.5	55.0	2.7.63	1.56	11.888	18.55	103.29.20.67		Jupiter.
9.48	-22.55.22.13	30.074	55.3	54.1	24.19				15.11.21.96	+2.90	$\beta$ Ursa Min. R.
	-22.55.20.84								15.11.23.25		$\beta$ Ursa Minoris.
8.45	62.56.45.77	30.092	53.8	53.0	1.53.66				100.45.47.21	-13.97	$\zeta^1$ Librae R.
	62.56.44.50								100.45.46.44		$\zeta^2$ Librae.
8.42	78.12.47.89	30.100	53.2	51.9	4.32.99				116.4.29.16	-16.53	Antares R.
	78.12.47.07								116.4.28.34		Antares.
9.29	39.51.13.04	30.108	52.6	50.5	48.54				77.19.9.66	-4.52	$\alpha$ Ophiuchi R.
	39.51.13.06								77.19.10.58		$\alpha$ Ophiuchi.
10.16	77.38.42.84	30.116	51.4	50.0	4.21.84				115.30.12.96	6.02	$\chi$ Sagittarii R.
	77.38.45.50								115.30.15.62		$\chi$ Sagittarii.
	30.59.5.80		49.4		34.85	1.68			68.26.45.23		Pallas.
	79.41.33.96	30.122	50.7	49.3					116.25.39.58		$\gamma$ .
	79.41.32.19				5.12.83	53.25.58		14.49.91	116.25.37.81		$\gamma$ .
	79.41.32.93								116.25.38.55		$\gamma$ .
	76.57.25.75		49.5		4.8.45				114.48.42.48	+0.04	$\chi^1$ Sagittarii.
	77.22.21.94				4.16.58				115.15.46.70	+1.27	$\chi^2$ Sagittarii.
	81.59.19.09	30.126	50.7	49.2	6.36.41	4.38			119.52.59.40		Ceres.
	76.57.26.07	30.200	56.5	54.0	4.6.77				114.48.41.12	+0.06	$\chi^3$ Sagittarii.
	77.22.21.57				4.14.82				115.15.44.67	+1.28	$\chi^4$ Sagittarii.

Coincidence of Micrometer Wire with fixed Wire - 10', 100", 10', 103, 10', 108, 10', 112, 10', 118 at the five wires. From July 13 - 10', 104, 10', 109, 10', 111, 10', 115, 10', 121.

One Micrometer Revolution - 20", 865

Correction for Run - - 6", 8

Adopted Zenith Point - 112' 40" 8", 83.

Assumed Co-latitude - 37° 47' 8", 28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microni. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
July 14	(a) S.L. M. ....	189.45	2.11,2	10,7	12,0	8,8	9,8	10,0	11,882	-37,11	-2	-5,06	189.46.27,90	G.
	S.L. M. ....	...	...	...	...	...	...	...	11,910	-37,58	-1	-2,53	189.46.29,96	G.
	S.L. M. ....	...	...	...	...	...	...	...	12,028	-40,01			189.46.30,06	G.
	S.L. M. ....	...	...	...	...	...	...	...	12,238	-44,31	+1	+2,53	189.46.28,29	G.
	S.L. M. ....	...	...	...	...	...	...	...	12,331	-46,12	+2	+5,06	189.46.29,01	G.
	Venus S.L. ....	142.15	4.33,2	31,8	34,9	30,0	33,2	31,6					142.19.31,53	G.
July 15	(b) N.L. ....	143.10	2.32,3	34,0	33,9	32,0	32,6	33,5					143.12.32,53	G.
	S.L. ....	143.40	4.47	6,0	6,5	3,3	1,9	2,8					143.44.3,37	G.
	π Capricorni. ....	183.35	4.60,9	60,0	61,7	57,2	54,3	60,8					183.39.58,13	G.
	α Cygni R. M. ....	285.10	4.26,9	26,1	26,2	24,8	17,3	26,3	5,153	+1.43,46			285.16.7,16	G.
	α Cygni. ....	120.15	1.12,8	8,9	10,8	7,0	1,4	8,4					120.16.7,98	G.
	(c) N.L. ....	185.20	4.10,7	9,7	9,7	7,3	7,8	10,0			+2	+6,48	185.24.14,83	G.
	π Capricorni. ....	180.45	1.23,0	20,9	21,6	20,0	18,2	22,3					180.46.20,73	G.
	α Cephei R. M. ....	302.25	1.35,0	32,1	33,0	31,7	24,8	32,3	6,786	+1.9,38			302.27.40,56	G.
	α Cephei. ....	103.0	4.42,3	37,0	40,0	36,7	33,6	38,4					103.4.37,07	G.
	ε Capricorni. ....	185.5	1.32,9	29,3	30,8	29,2	23,8	31,5					185.6.29,28	G.
	α Aquilæ R. M. ....	249.0	0.25,9	25,0	23,2	23,9	17,3	25,5	7,470	+55,11			249.1.18,49	G.
	α Aquilæ. ....	156.30	0.60,0	59,0	61,3	58,0	54,8	59,0					156.30.58,48	G.
July 16	(d) β Aquilæ R. M. ....	246.30	2.42,4	41,0	40,0	40,4	33,8	42,0	3,290	+2.22,34			246.35.1,72	G.
	β Aquilæ. ....	158.55	2.15,3	14,5	16,2	13,6	7,8	14,2					158.57.13,15	G.
	Ceres. ....	195.0	0.57,8	55,8	56,4	55,8	50,3	55,2					195.0.55,03	G.
	ρ Draconis R. M. ....	507.55	2.35,1	33,2	33,1	33,8	26,0	34,0	8,540	+32,78			307.58.4,80	G.
	ρ Draconis. ....	97.30	4.19,0	13,0	16,8	13,0	8,3	14,8					97.34.13,30	G.
	π Capricorni. ....	183.35	4.57,8	57,8	59,3	54,4	56,3	57,3			+3	-0,46	183.39.55,69	G.
	π Capricorni. ....	180.45	1.23,0	20,3	22,3	21,0	14,2	21,4					180.46.20,10	G.
	α Cephei R. M. ....	302.25	2.41,0	39,4	39,8	39,0	31,0	39,8	9,919	+4,01			302.27.41,81	G.
	α Cephei. ....	103.0	4.42,1	36,8	40,8	36,6	33,3	37,9					103.4.36,98	G.
	ε Capricorni. ....	185.5	1.33,0	31,8	32,2	30,4	27,2	32,4					185.6.30,87	G.
	(e) N.L. M. ....	180.30	3.40,2	38,4	40,3	37,6	34,1	40,0	10,837	-15,30	-2	-7,50	180.33.14,90	G.
	N.L. M. ....	...	...	...	...	...	...	...	10,984	-18,25	-1	-3,75	180.33.15,70	G.
	N.L. M. ....	...	...	...	...	...	...	...	11,153	-21,74			180.33.15,96	G.
	N.L. M. ....	...	...	...	...	...	...	...	11,333	-25,42	+1	+3,75	180.33.16,03	G.
	N.L. M. ....	...	...	...	...	...	...	...	11,574	-30,32	+2	+7,50	180.33.14,88	G.
	ι Aquarii. ....	179.30	5.6,2	4,5	8,5	4,8	3,8	6,3					179.35.4,65	G.
	θ Aquarii. ....	173.30	1.43,8	40,3	43,0	39,8	34,9	41,4					173.31.40,18	G.
July 17	⊙ N.L. M. ....	143.30	4.24,2	25,0	26,0	24,8	21,2	24,3	15,878	-2.0,35			143.32.23,00	G.
	⊙ S.L. ....	144.0	3.55,0	54,8	56,3	53,6	50,1	51,2					144.3.52,70	G.
July 20	Mercury, center. ....	152.45	4.7,3	6,0	8,2	5,4	2,2	6,9					152.49.5,17	G.
July 21	⊙ N.L. M. ....	144.15	2.21,2	22,0	21,3	19,4	15,8	19,4	12,938	-59,00			144.16.20,38	G.
	⊙ S.L. ....	144.45	2.52,9	53,4	52,2	51,5	48,1	49,7					144.47.50,72	G.
	Mercury, center. ....	153.15	1.50,0	49,7	52,6	48,9	47,2	48,8					153.16.49,17	G.
July 22	(f) ⊙ S.L. M. ....	145.0	0.27,0	28,3	27,2	26,8	21,2	25,0	12,171	-42,99			144.59.42,84	G.
	Mercury, center. ....	153.40	3.38,9	37,6	40,2	37,1	35,2	37,8					153.43.37,07	G.
July 24	(g) ⊙ S.L. M. ....	145.20	4.37,1	36,9	37,8	34,8	33,1	35,8	10,520	-8,50			145.24.26,42	G.
	⊙ N.L. ....	144.50	2.56,3	55,0	57,2	53,8	50,0	52,5					144.52.53,50	G.
July 27	(h) ⊙ N.L. M. ....	145.30	2.27,1	26,1	26,9	24,1	21,0	24,6	9,903	+4,38			145.32.28,83	G.
	⊙ S.L. ....	146.0	3.63,0	61,8	65,0	60,3	59,0	59,9					146.4.0,63	G.
	α Lyrae R. M. ....	279.10	1.34,8	34,9	34,0	33,2	25,0	32,8	9,095	+21,25			279.11.53,37	G.
	α Lyrae. ....	126.20	0.24,0	22,9	23,2	22,0	14,5	23,2					126.20.21,55	G.
	β Lyrae R. M. ....	273.45	0.24,1	26,0	25,0	24,9	16,2	23,8	12,557	-51,00			273.44.32,25	G.
	β Lyrae. ....	131.45	2.46,7	44,9	46,7	44,8	38,0	44,8					131.47.43,73	G.
July 28	(i) ⊙ S.L. M. ....	146.15	3.22,7	18,5	21,4	18,3	14,1	19,7	11,422	-27,32			146.17.51,08	G.

Runs taken July 20, 1<sup>h</sup>. (Temp. 65°.)Coincidence at the middle wire and Runs taken July 27, 1<sup>h</sup>. (Temp. 64°.)

(a) Uneven.

(b) Accidentally on fixed wire.

(c) Not satisfactory.

(d) Mercury waving.

(e) Very tremulous.

(f) Without dark glass; not satisfactory.

(g) Cloudy; not good.

(h) Without dark glass; very faint.

(i) Very cloudy and unsatisfactory.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
	77. 0. 19,07	30,200	56,3	53,8					113. 43. 27,17		γ.
	77. 0. 21,13								113. 43. 29,23		γ.
	77. 0. 21,23				4. 7,81	53. 12,81		14. 55,18	113. 43. 29,33		γ.
	77. 0. 19,46								113. 43. 27,56		γ.
	77. 0. 20,18								113. 43. 28,28		γ.
	29. 53. 22,70	30,156	67,0	67,5	32,18	2,42	10,623	5,24	67. 20. 55,50		Venus.
	30. 26. 23,70	30,156	67,0	67,7	33,34	4,25			68. 29. 46,47		⊙.
	30. 57. 54,54				34,03	4,31		15. 45,40	68. 29. 47,14		⊙.
	70. 53. 49,50	30,082	58,4	56,8	2. 45,37				108. 43. 42,95	+ 6,52	π Capricorni.
7,57	7. 30. 1,07				7,62				45. 17. 17,57	+ 1,47	α Cygni R.
	7. 29. 59,15								45. 17. 15,05		α Cygni.
	72. 38. 6,00	30,074	58,3	56,7	3. 2,74	52. 28,83		15. 1,62	109. 50. 49,81		γ.
	68. 0. 11,90			56,4	2. 22,23				105. 49. 42,41	+ 10,83	ε Capricorni.
8,82	- 9. 41. 31,73				9,88				28. 5. 26,67	- 0,52	α Cephei R.
	- 9. 41. 31,76								28. 5. 26,64		α Cephei.
	72. 20. 20,45				2. 59,67				110. 10. 28,40	+ 13,36	ε Capricorni.
8,49	43. 44. 50,34	29,896	59,3	57,2					81. 32. 53,55	+ 2,71	α Aquilæ R.
	43. 44. 49,65				54,93				81. 32. 52,86		α Aquilæ.
7,44	46. 11. 7,11				59,79				83. 59. 15,18	+ 2,82	β Aquilæ R.
	46. 11. 4,32								83. 59. 12,39		β Aquilæ.
	82. 14. 46,20				6. 38,40	4,38			120. 8. 28,50		Ceres.
9,05	- 15. 11. 55,97				15,61				22. 34. 56,70	- 0,32	ρ Draconis R.
	- 15. 11. 55,33								22. 34. 57,14		ρ Draconis.
	70. 53. 46,86	29,884	57,8	54,3	2. 45,13				108. 43. 40,27	+ 6,57	π Capricorni.
	68. 0. 11,27	29,876	56,0	53,2	2. 22,22				105. 49. 41,77	+ 10,93	ε Capricorni.
9,40	- 9. 41. 32,98				9,88				28. 5. 25,42	- 0,16	α Cephei R.
	- 9. 41. 31,85								28. 5. 27,55		α Cephei.
	72. 20. 22,04	29,864	55,2	52,5	2. 59,86				110. 10. 30,18	+ 13,43	ε Capricorni.
	67. 47. 6,07								105. 0. 25,99		γ.
	67. 47. 6,87								105. 0. 26,79		γ.
	67. 47. 7,13				2. 20,85	51. 18,21		15. 9,00	105. 0. 27,05		γ.
	67. 47. 7,20								105. 0. 27,12		γ.
	67. 47. 6,03								105. 0. 25,97		γ.
	66. 48. 55,82				2. 14,40				104. 38. 18,50	+ 15,06	ι Aquarii.
	60. 45. 31,35				1. 43,10				98. 34. 22,73	+ 14,63	θ Aquarii.
	30. 46. 14,17	29,860	61,2	62,6	33,78	4,29		15. 45,60	68. 49. 37,54		⊙.
	31. 17. 43,87				34,49	4,35			68. 49. 36,69		⊙.
	40. 2. 56,34	29,436	65,3	65,8	46,70	6,68			77. 50. 44,64		Mercury.
	31. 30. 11,55	29,514	64,3	64,5	34,24	4,38			69. 33. 35,59		⊙.
	32. 1. 41,89				34,95	4,45		15. 45,90	69. 33. 34,77		⊙.
	40. 30. 40,34	29,530	65,7	65,8	47,62	6,87			78. 18. 29,37		Mercury.
	32. 13. 34,01	29,750	61,3	62,0	33,68	4,47		15. 45,90	69. 45. 27,60		⊙.
	40. 57. 28,24	29,760	62,3	63,2	49,00	7,05			78. 45. 18,47		Mercury.
	32. 38. 17,59	29,950	62,5	63,4	36,39	4,52			70. 10. 11,64		⊙.
	32. 6. 44,67				35,66	4,46		15. 46,10	70. 10. 10,25		⊙.
	32. 46. 20,00	29,868	61,8	63,1	36,50	4,54			70. 49. 46,64		⊙.
	33. 17. 51,80				37,24	4,61		15. 46,40	70. 49. 46,31		⊙.
7,46	13. 34. 15,46				13,83				51. 21. 37,57	+ 3,29	α Lyrae R.
	13. 34. 12,72								51. 21. 34,83		α Lyrae.
7,99	19. 1. 36,58				19,75				56. 49. 4,61	+ 3,24	β Lyrae R.
	19. 1. 34,90								56. 49. 2,93		β Lyrae.
	33. 31. 42,25	30,000	61,1	62,7	37,76	4,64		15. 46,50	71. 3. 37,15		⊙.

Coincidence of Micrometer Wire with fixed Wire - 10', 104, 10', 109, 10', 111, 10', 115, 10', 121 at the five wires. From July 24 - 10', 115 at the middle wire. Coincidences adopted at the other wires - 10', 103, 10', 110, 10', 117, 10', 123.

One Micrometer Revolution - 20", 868.

Correction for Run - - 4", 8. From Venus July 14 - - 6", 1. From July 24 - - 6", 5.

Adopted Zenith Point - 112°. 46'. 8". 83.

Assumed Co-latitude - 37°. 47'. 6". 78.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micron. Reading	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
July 30	(a) ☉ S.L. ....	146.45	1.29,2	29,0	28,4	27,0	22,5	26,8			+3	-0,09	146.46.26,74	G.
	☉ N.L. ....	146.10	4.53,1	53,4	54,9	52,6	50,5	52,5			+4	+0,09	146.14.51,87	G.
July 31	η Herculis R. M. ...	279.45	3.27,4	26,0	27,5	25,9	20,3	26,5	13,132	-1.3,00			279.47.21,87	G.
	η Herculis. ....	125.40	4.57,6	56,9	58,8	55,5	52,2	55,8					125.44.55,07	G.
	(b) λ Sagittarii R. M. ...	215.5	3.25,0	21,8	21,9	21,0	18,1	23,1	12,919	-58,56			215.7.22,54	G.
	λ Sagittarii. ....	190.20	4.58,8	57,0	59,2	56,4	57,0	57,0			+2	-0,29	190.24.56,19	G.
	Pallas. ....	145.45	1.46,2	43,4	46,5	43,9	41,7	44,1					145.46.43,93	G.
	(c) * R. 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> . ...	143.5	4.8,3	4,7	9,1	4,0	3,2	6,4					143.9.5,07	G.
	β Lyrae R. M. ....	273.40	4.25,2	24,1	25,3	22,4	15,5	24,1	9,512	+12,33	-2	-0,40	273.44.33,75	G.
	β Lyrae. ....	131.45	2.47,0	44,2	46,3	44,4	39,1	43,6					131.47.43,52	G.
	β Lyrae (comes) R. M. ...	273.40	4.25,2	24,1	25,3	22,4	15,5	24,1	11,408	-27,09	-1	-0,10	273.43.54,63	G.
	β Lyrae (comes) M. ...	131.45	2.47,0	44,2	46,3	44,4	39,1	43,6	8,188	+40,17			131.48.23,69	G.
	Pollux R. M. ....	268.55	1.17,5	13,2	14,7	14,1	4,4	12,9	4,515	+1.56,90	+1	-0,08	268.58.9,35	G.
	Pollux. ....	136.30	4.9,7	7,9	10,9	8,0	4,1	8,9			+2	+0,33	136.34.7,70	G.
Aug. 1	☉ N.L. M. ....	146.40	4.26,8	24,9	25,5	22,7	21,2	23,4	9,239	+18,11			146.44.41,26	G.
	☉ S.L. ....	147.15	1.18,0	16,0	15,8	15,6	11,4	14,7					147.16.14,98	G.
	(d) α Ursae Maj. R. M. ...	303.10	0.37,0	33,0	32,9	34,8	25,9	33,6	11,933	-37,98	+1	-0,29	303.9.54,50	G.
	α Ursae Majoris. ...	102.20	2.24,2	22,3	21,9	21,3	18,3	20,4			+3	+2,60	102.22.23,50	G.
	Polaris SP. R. M. ...	332.0	4.23,2	18,0	20,3	19,7	18,0	20,1	7,630	+51,70			332.5.10,67	G.
	Polaris SP. ....	73.25	2.12,8	9,0	10,0	8,2	3,4	7,5					73.27.8,02	G.
	(e) ζ Ursae Min. R. M. ...	318.45	4.19,0	13,3	16,1	14,8	8,9	15,4	8,193	+39,94			318.49.53,62	G.
	ζ Ursae Minoris. ...	86.40	2.26,9	24,8	25,5	24,0	19,7	22,7					86.42.23,42	G.
	Pallas. ....	145.55	1.25,2	24,0	25,0	23,4	21,2	24,6					145.56.23,60	G.
	* R. 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> . ...	145.10	1.50,9	50,3	51,8	48,8	46,9	49,0					145.11.49,23	G.
	* R. 18 <sup>h</sup> . 37 <sup>m</sup> . 59 <sup>s</sup> . ...	143.10	0.54,3	53,5	55,7	51,8	50,2	52,8					143.10.52,87	G.
	* R. 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> . M. ...	...	...	...	...	...	...	...	15,275	-1.47,85			143.9.5,02	G.
	β Lyrae R. M. ....	273.40	4.25,3	25,0	24,9	22,4	20,1	23,4	9,541	+11,81			273.44.34,39	G.
	β Lyrae. ....	131.45	2.44,8	41,8	44,0	41,8	39,1	41,9			+3	+0,89	131.47.42,54	G.
	β Lyrae (comes) R. M. ...	273.40	4.25,3	25,0	24,9	22,4	20,1	23,4	11,412	-27,05	+1½	-0,22	273.43.55,31	G.
	(f) β Lyrae (comes) M. ...	131.45	2.44,8	41,8	44,0	41,8	39,1	41,9	8,214	+39,84	+3	+0,89	131.48.22,38	G.
	A.S.C. 874. SP. R. M. ...	337.50	1.22,9	19,9	21,0	21,3	16,9	21,6	12,348	-46,76			337.50.33,72	G.
	(g) A.S.C. 874. SP. ...	67.40	1.46,9	44,9	45,0	44,3	40,0	45,3					67.41.44,03	G.
	β Aquilae R. M. ...	246.30	3.40,2	37,2	38,4	36,0	33,3	39,0	5,804	+1.29,79			246.35.6,37	G.
	β Aquilae. ....	158.55	2.11,3	9,1	12,4	9,6	6,8	10,1					158.57.9,43	G.
	55 Camel. SP. R. M. ...	351.35	2.14,0	11,5	13,1	12,2	8,2	12,1	14,658	-1.34,96			351.35.36,42	G.
	55 Camelopard. SP. ...	53.55	1.45,2	43,2	41,2	42,5	37,0	42,8					53.56.41,62	G.
Aug. 3	☉ N.L. M. ....	147.15	0.35,7	37,1	35,7	35,2	34,0	34,0	9,850	+5,36			147.15.40,51	G.
	☉ S.L. ....	147.45	2.14,9	13,8	13,3	12,4	10,0	10,8					147.47.12,07	G.
	(h) Venus S.L. ....	147.0	3.36,9	38,0	35,2	35,0	36,0	35,1					147.3.35,27	G.
	(e) α Ursae Maj. R. M. ...	303.10	0.37,0	33,3	32,0	33,4	26,0	33,9	11,970	-38,87			303.9.53,63	G.
	α Ursae Majoris. ...	102.20	2.28,9	25,8	26,0	23,3	24,5	22,7			+1	+0,29	102.22.24,97	G.
	Spica R. M. ....	230.10	4.35,9	35,8	30,9	35,2	31,9	34,5	7,858	+46,93			230.15.20,00	G.
	Spica. ....	175.15	1.54,8	56,4	53,8	54,3	52,5	50,7					175.16.53,35	G.
	(e) δ N.L. M. ....	178.55	1.57,9	61,0	58,8	59,9	57,1	55,1	9,111	+20,66	-2	+7,60	178.57.26,14	G.
	δ N.L. M. ....	...	...	...	...	...	...	...	8,949	+24,15	-1	+3,80	178.57.25,83	G.
	δ N.L. M. ....	...	...	...	...	...	...	...	8,803	+27,21			178.57.25,09	G.
	δ N.L. M. ....	...	...	...	...	...	...	...	8,560	+32,40	+1	-3,80	178.57.26,48	G.
	δ N.L. M. ....	...	...	...	...	...	...	...	8,287	+38,21	+2	-7,60	178.57.28,49	G.
	η Ursae Maj. R. M. ...	290.40	1.26,0	21,4	18,9	24,0	14,1	22,8	13,690	-1.14,76			290.40.6,16	G.
	η Ursae Majoris. ...	114.50	2.10,2	9,0	9,7	6,8	7,0	5,0					114.52.7,50	G.
	η Bootis R. M. ...	259.45	1.18,0	16,8	13,2	18,2	10,1	16,9	11,069	-20,07			259.45.55,20	G.
	η Bootis. ....	145.45	1.21,8	23,3	21,4	20,5	19,7	18,7					145.46.20,62	G.
	ε Bootis R. M. ....	268.15	3.28,8	27,1	24,1	28,0	21,1	28,0	9,117	+20,66			268.18.46,11	G.
	ε Bootis. ....	137.10	3.32,2	31,0	30,8	28,0	29,3	27,3					137.13.29,02	G.
	β Bootis R. M. ...	281.35	0.50,7	48,0	45,9	49,9	41,2	48,4	12,498	-49,90			281.34.57,28	G.
	β Bootis. ....	123.55	2.23,2	20,0	20,8	18,7	16,0	16,0					123.57.18,62	G.
	(i) Antares R. M. ...	214.30	4.26,2	26,2	23,2	23,4	21,2	24,7	13,703	-1.15,04			214.33.8,18	G.
	Antares. ....	190.55	4.10,0	9,2	8,8	9,2	5,8	8,2					190.59.7,65	G.

Runs taken Aug. 3, 6<sup>h</sup>. (Temp. 74°, 5.)Coincidences at the five wires taken Aug. 5, 1<sup>h</sup>.

(a) S.L. by accident on the fixed wire. Delayed by clouds.

(b) Blur: mercury agitated.

(c) The brighter of two.

(d) Cloudy.

(e) Very faint.

(f) Adopted coincidence = 10', 123.

(g) Just before the bisections microscope D was struck, but apparently without any injurious effect.

(h) Dancing and ill-defined.

(i) Good, for so low a star.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
	34. 0. 17.91 33. 28. 43.04	30,014	67,7	68,5	38,02 37,27	4,70 4,68		15. 46,80	71. 32. 12,71 71. 32. 10,76		☉. ☉.
8,47	12. 58. 46,96 12. 58. 46,24	30,134	61,3	59,8	13,28				50. 46. 8,52 50. 46. 7,80	+ 1,64	η Herculis R. η Herculis.
9,37	77. 38. 46,29 77. 38. 47,36		58,7	57,0	4. 18,20				115. 30. 12,77 115. 30. 13,84	- 6,40	λ Sagittarii R. λ Sagittarii.
	33. 0. 35,10 30. 22. 56,24			56,5	37,61 33,98	1,75			70. 48. 19,24 68. 10. 38,50	+ 3,04	Pallas. * R. 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> .
8,64	19. 1. 35,08 19. 1. 34,69				20,00				56. 49. 3,36 56. 49. 2,97	+ 4,22	β Lyrae R. β Lyrae.
9,16	19. 2. 14,20 19. 2. 14,86				20,01				56. 49. 42,49 56. 49. 43,15	+ 4,22	β Lyr. (comes) R. β Lyrae (comes).
8,53	23. 47. 59,48 23. 47. 58,87	30,160	64,6	64,3	25,19				61. 35. 32,95 61. 35. 32,34	+ 3,10	Pollux R. Pollux.
	33. 58. 32,45 34. 30. 6,15	30,156	64,0	63,5	38,38 39,15	4,69 4,76		15. 47,00	72. 2. 1,40 72. 2. 1,82		☉. ☉.
9,00	- 10. 23. 45,67 - 10. 23. 45,33	30,148	65,6	67,4	10,41				27. 23. 12,20 27. 23. 12,54	- 0,11	α Ursae Maj. R. α Ursae Majoris.
9,35	- 39. 19. 1,84 - 39. 19. 0,81	30,158	66,5	68,2	46,36				- 1. 32. 39,92 - 1. 32. 38,89	- 0,91	Polaris SP. R. Polaris SP.
8,52	- 26. 3. 44,79 - 26. 3. 45,41	30,130	65,1	65,5	27,84				11. 42. 55,65 11. 42. 55,03	+ 4,13	ζ Ursae Min. R. ζ Ursae Minoris.
	33. 10. 14,77 32. 25. 40,40	30,138	62,8	60,4	37,59 36,54	1,75			70. 57. 58,89 70. 13. 25,22	+ 2,34	Pallas. * R. 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> .
	30. 24. 44,04 30. 22. 56,19				33,76 33,72				68. 12. 26,08 68. 10. 38,19	+ 3,20 + 3,24	* R. 18 <sup>h</sup> . 37 <sup>m</sup> . 59 <sup>s</sup> . * R. 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> .
8,47	19. 1. 34,44 19. 1. 33,71				19,84				56. 49. 2,56 56. 49. 1,83	+ 4,46	β Lyrae R. β Lyrae.
8,85	19. 2. 13,52 19. 2. 13,55				19,85				56. 49. 41,65 56. 49. 41,68	+ 4,46	β Lyr. (comes) R. β Lyrae (comes).
8,88	- 45. 4. 24,89 - 45. 4. 24,80				57,62				- 7. 18. 14,23 - 7. 18. 14,14	3,39	A.S.C. 874. sp. n. A.S.C. 874. SP.
7,90	46. 11. 2,46 46. 11. 0,60	30,134	60,0	56,8	1. 0,31				83. 59. 11,05 83. 59. 9,19	+ 3,41	β Aquilae R. β Aquilae.
9,02	- 58. 49. 27,59 - 58. 49. 27,21				1. 35,46				- 21. 3. 54,77 - 21. 3. 54,39	- 1,66	55 Camel. SP. R. 55 Camel. SP.
	34. 29. 31,68 35. 1. 3,24	30,120	69,6	72,1	38,58 39,35	4,76 4,82		15. 47,30	72. 33. 1,08 72. 32. 58,75		☉. ☉.
9,30	34. 17. 26,44 - 10. 23. 44,80	30,110	71,2	75,0	38,29 10,25	2,78	10,679	5,97	72. 5. 4,26 27. 23. 13,23	- 0,63	Venus. α Ursae Maj. R.
6,68	- 10. 23. 43,86 62. 30. 48,83	30,100	72,0	75,5	1. 46,71				27. 23. 14,17 100. 19. 43,82	- 15,56	α Ursae Majoris. Spica R.
	62. 30. 44,52 66. 11. 17,31								100. 19. 39,51 103. 24. 59,85		Spica. β.
	66. 11. 17,00 66. 11. 16,26				2. 5,38	50. 39,72		15. 8,40	103. 24. 59,54 103. 24. 58,80		β. β.
	66. 11. 17,65 66. 11. 19,66								103. 25. 0,19 103. 25. 2,20		β. β.
6,83	2. 6. 2,67 2. 5. 58,67				2,03				39. 53. 13,00 39. 53. 9,00	+ 0,42	η Ursae Maj. R. η Ursae Majoris.
7,01	33. 0. 13,68 33. 0. 11,79				36,21				70. 47. 58,12 70. 47. 56,28	- 6,34	η Bootis R. η Bootis.
7,57	24. 27. 22,72 24. 27. 20,19	30,090	71,1	74,5	25,41				62. 14. 56,41 62. 14. 53,88	- 3,32	ε Bootis R. ε Bootis.
7,06	11. 11. 11,55 11. 11. 9,79				11,05				48. 58. 30,88 48. 58. 29,12	+ 0,00	β Bootis R. β Bootis.
7,02	78. 13. 0,65 78. 12. 58,82		70,0	71,0	4. 22,44				116. 4. 31,37 116. 4. 29,54	16,69	Antares R. Antares.

Coincidence of Micrometer Wire with fixed Wire - 10', 103, 10', 110, 10', 113, 10', 117, 10', 123 at the five wires. From  
 Aug. 1 - 10', 101, 10', 106, 10', 107, 10', 113, 10', 118.  
 One Micrometer Revolution - 20", 868.  
 Correction for Rams - - 6".5. From Aug. 1 - - 6", 4.  
 Adopted Zenith Point - 112°. 47' 8", 83.  
 Assumed Co-latitude - 57°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  " "	Correction to Middle Wire.  " "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Aug. 3	A.S.C. 2052 .....	195. 5	1. 18,0	18,3	15,0	17,3	14,8	14,4					195. 6. 16,03	G.
	Pallas .....	146. 15	1. 19,8	16,5	17,2	17,0	12,9	17,4					146. 16. 16,53	G.
	* $\bar{R}$ . 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> . ..	145. 10	1. 53,1	51,4	51,1	49,3	48,1	49,8					145. 11. 50,08	G.
	* $\bar{R}$ . 18 <sup>h</sup> . 37 <sup>m</sup> . 59 <sup>s</sup> . ..	143. 10	0. 56,2	54,9	54,8	53,3	49,8	53,3					143. 10. 53,52	G.
	* $\bar{R}$ . 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> . M. ...	...	...	...	...	...	...	...	15,339	- 1. 49,18			143. 9. 4,34	G.
Aug. 4	(a) $\odot$ S.L. M. ....	148. 0	3. 27,8	27,2	26,9	27,0	23,2	24,9	10,800	- 14,46			148. 3. 10,96	G.
	$\odot$ N.L. ....	147. 30	1. 36,8	37,0	36,4	36,7	32,0	34,8					147. 31. 35,28	G.
	(b) $\eta$ Ursæ Maj. R. M. ....	290. 40	1. 37,0	31,5	31,5	32,5	24,1	33,2	14,137	- 1. 23,97	+1	- 0,18	290. 40. 7,17	G.
	$\eta$ Ursæ Majoris ...	114. 50	2. 10,3	8,9	8,0	8,8	3,0	5,3			+2	+ 0,72	114. 52. 7,65	G.
	(b) $\gamma$ N.L. M. ....	183. 55	3. 9,3	9,1	6,8	8,4	3,7	7,5	9,679	+ 8,81	-2	+ 6,66	183. 58. 22,27	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,581	+ 10,95	-1	+ 3,33	183. 58. 21,08	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,450	+ 13,71			183. 58. 20,51	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,282	+ 17,34	+1	- 3,33	183. 58. 20,81	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,150	+ 20,20	+2	- 6,66	183. 58. 20,34	G.
	Pallas .....	146. 25	1. 30,4	27,9	28,0	26,7	25,9	27,0					146. 26. 27,33	G.
	* $\bar{R}$ . 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> . ..	145. 10	1. 53,8	51,2	51,3	49,9	48,8	48,4					145. 11. 50,18	G.
	$\alpha$ Lyrae R. M. ....	279. 10	1. 32,0	29,8	26,9	28,0	20,4	26,7	8,713	+ 29,09			279. 11. 56,09	G.
	$\alpha$ Lyrae .....	126. 20	0. 25,0	22,3	21,5	21,8	17,0	20,7					126. 20. 21,32	G.
	* $\bar{R}$ . 18 <sup>h</sup> . 37 <sup>m</sup> . 59 <sup>s</sup> . ..	143. 10	0. 56,9	55,0	55,5	53,4	51,8	53,3					143. 10. 54,13	G.
	* $\bar{R}$ . 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> . M. ...	...	...	...	...	...	...	...	15,362	- 1. 49,65			143. 9. 4,48	G.
	O Herculis .....	142. 30	1. 37,0	32,0	34,4	31,4	31,2	32,2					142. 31. 32,70	G.
	$\epsilon$ Aquilæ R. M. ....	255. 20	3. 26,7	24,8	22,4	22,3	19,9	23,1	4,086	+ 2. 5,65			255. 25. 28,13	G.
	$\epsilon$ Aquilæ .....	150. 5	1. 54,1	52,1	52,9	49,1	48,0	49,4					150. 6. 50,53	G.
	A.S.C. 874. sp. R.M. ....	337. 50	1. 21,2	16,3	17,3	19,0	13,8	17,6	12,082	- 41,21			337. 50. 36,04	G.
	A.S.C. 874. SP. ....	67. 40	1. 45,3	40,0	40,0	39,4	37,4	40,5					67. 41. 40,08	G.
Aug. 5	$\odot$ N.L. M. ....	147. 45	2. 26,0	24,9	24,9	24,2	22,1	22,8	8,941	+ 24,34			147. 47. 47,97	G.
	$\odot$ S.L. ....	148. 15	4. 25,7	23,0	24,0	21,4	21,0	22,2					148. 19. 21,95	G.
	(c) Venus N.L. ....	147. 45	0. 8,1	7,1	7,0	7,0	2,0	4,4					147. 45. 5,92	G.
	Saturn N.L. ....	186. 10	0. 48,2	48,3	44,1	46,9	43,8	45,0					186. 10. 45,88	G.
	$\Delta$ Ophiuchi (1st star) ..	191. 15	1. 23,8	22,5	20,9	22,2	19,3	21,0					191. 16. 21,33	G.
	$\Delta$ Ophi. (2nd star) M. ...	...	...	...	...	...	...	...	10,250	- 2,98			191. 16. 18,35	G.
	$\epsilon^2$ Ophiuchi .....	188. 45	0. 24,8	24,0	22,4	23,0	18,0	20,8					188. 45. 22,08	G.
	$\rho$ Draconis R. M. ....	307. 55	3. 25,1	20,0	21,5	20,1	16,4	21,7	10,390	- 5,90			307. 58. 14,18	G.
	$\rho$ Draconis .....	97. 30	4. 13,4	5,9	10,5	6,8	4,8	6,8					97. 34. 7,15	G.
	$\alpha^1$ Capricorni R.M. ....	227. 30	2. 25,1	21,1	20,5	20,0	15,0	20,5	0,704	+ 3. 16,20	-1	+ 0,04	227. 35. 36,11	G.
	$\alpha^1$ Capricorni .....	177. 55	1. 43,2	39,8	41,0	39,8	36,4	39,7			+2	- 0,14	177. 56. 39,49	G.
	$\alpha^2$ Capricorni R.M. ....	227. 30	2. 25,1	21,1	20,5	20,0	15,0	20,5	7,228	+ 1. 0,06	-1	+ 0,04	227. 33. 19,97	G.
	$\alpha^2$ Capricorni M. ....	177. 55	1. 43,2	39,8	41,0	39,8	36,4	39,7	3,609	+ 2. 15,83	+2	- 0,14	177. 58. 55,32	G.
	(d) Procyon R.M. ....	246. 10	1. 26,0	22,2	22,1	22,8	14,9	22,0	7,811	+ 47,92			246. 12. 9,29	G.
	Procyon .....	159. 20	0. 10,0	9,0	9,7	9,0	2,5	6,7					159. 20. 7,80	G.
Aug. 6	$\odot$ S.L. M. ....	148. 35	1. 33,6	33,2	33,0	32,3	29,1	31,4	12,033	- 40,20			148. 35. 51,58	G.
	$\odot$ N.L. ....	148. 0	4. 18,3	16,9	18,6	16,6	13,3	15,8					148. 4. 15,67	G.
	(c) Venus S.L. ....	148. 5	1. 49,3	52,5	48,9	48,2	44,0	46,3					148. 6. 47,82	G.
	(d) Polaris SP. R. M. ....	332. 5	0. 28,9	22,9	23,8	23,7	20,1	22,9	10,690	- 12,16			332. 5. 11,47	G.
	Polaris SP. ....	73. 25	2. 12,2	10,0	10,1	8,5	5,3	6,2					73. 27. 8,27	G.
	Spica R. M. ....	230. 10	4. 25,8	20,9	18,9	21,9	17,3	21,8	7,179	+ 1. 1,11			230. 15. 21,29	G.
	Spica .....	175. 15	1. 58,2	57,9	57,3	58,1	53,8	55,0					175. 16. 56,30	G.
	$\eta$ Bootis R. M. ....	259. 45	1. 22,0	20,2	18,0	20,2	13,9	20,6	11,271	- 24,29			259. 45. 54,58	G.
	$\eta$ Bootis .....	145. 45	1. 24,0	23,8	21,9	22,3	19,6	21,8					145. 46. 21,95	G.
	$\gamma$ N.L. M. ....	191. 10	0. 26,0	24,5	21,8	25,4	18,1	23,7	9,881	+ 4,59	-2	+ 3,80	191. 10. 31,56	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,788	+ 6,64	-1	+ 1,90	191. 10. 31,71	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,671	+ 9,11			191. 10. 32,28	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,560	+ 11,53	+1	- 1,90	191. 10. 32,80	G.
	$\gamma$ N.L. M. ....	...	...	...	...	...	...	...	9,509	+ 12,71	+2	- 3,80	191. 10. 32,08	G.
	$\sigma$ Scorpii .....	190. 5	2. 23,6	23,9	21,8	24,8	20,0	22,0					190. 7. 22,18	G.
	$h$ Ur. Maj. sp. R. M. ....	356. 45	2. 22,7	14,2	18,8	17,8	11,8	18,3	13,668	- 1. 14,30			356. 46. 2,47	G.
	$h$ Ursæ Majoris SP. ....	48. 45	1. 22,7	14,9	16,4	15,4	9,8	17,0					48. 46. 15,77	G.

(a) Without dark glass. (b) Extremely faint.

(c) Difficult to observe, so much motion.

(d) Unsteady.

(e) Doubtful observation, the planet being so near the Sun : the extent of vertical vibration was judged to be equal to the semidiameter.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
7.41	82.20. 7.20	30,090	68.2	66.5	6.37,35	1.76			120.13.52.83	-10.56	A.S.C. 2052.
	33.30. 7.70			64.3	37.71				71.17.51.93		Pallas.
	32.25.41.25				36.20				70.13.25.73	+2.70	* R.18 <sup>b</sup> .25 <sup>m</sup> .1 <sup>s</sup> .
	30.24.44.69				33.45				68.12.26.42	+3.58	* R.18 <sup>b</sup> .37 <sup>m</sup> .59 <sup>s</sup> .
	30.22.55.51				33.41				68.10.37.20	+3.62	* R.18 <sup>b</sup> .38 <sup>m</sup> .48 <sup>s</sup> .
	35.17. 2.13	30,108	69.0	70.8	39.82	4.85	15.47.50		72.48.57.88		☉.
	34.45.26.45				39.05	4.79			72.48.56.49		☉.
	2. 6. 1.66	30,080	70.4	72.3	2.06				39.53.42.00	+0.34	η Ursæ Maj. R.
	2. 5.58.82								39.53. 9.16		η Ursæ Majoris.
	71.12.13.44	30,072	69.7	70.1					108.25.11.74		).
8.71	71.12.12.25						14.58.52		108.25.10.55		).
	71.12.11.68				2.43.72	51.52.22			108.25. 9.98		).
	71.12.11.98								108.25.10.28		).
	71.12.11.51								108.25. 9.81		).
	33.40.18.50	30,092	67.0	65.5	37.87	1.76			71.28. 2.89		Pallas.
	32.25.41.33				36.11		9.641	4.87	70.13.25.74	+2.88	* R.18 <sup>b</sup> .25 <sup>m</sup> .1 <sup>s</sup> .
	13.34.12.74				13.73				51.21.34.75	+5.25	α Lyrae R.
	13.34.12.49								51.21.34.50		α Lyrae.
	30.24.45.30				33.87				68.12.26.95	+3.77	* R.18 <sup>b</sup> .37 <sup>m</sup> .59 <sup>s</sup> .
	30.22.55.65				33.33				68.10.37.26	+3.81	* R.18 <sup>b</sup> .38 <sup>m</sup> .48 <sup>s</sup> .
9.33	29.45.23.87				32.50				67.33. 4.65	+4.29	ο Herculis.
	37.20.40.70				43.36				75. 8.32.34	+3.62	ε Aquilæ R.
	37.20.41.70								75. 8.33.34		ε Aquilæ.
	-45. 4.27.21				56.95				-7.18.15.88	-4.20	A.S.C. 874. SP. R.
8.06	-45. 4.28.75								-7.18.17.42		A.S.C. 874. SP.
10.67	35. 1.39.14	30,086	68.2	68.6	39.59	4.82	9.348	7.92	73. 5. 9.79		☉.
	35.33.13.12				40.37	4.89			73. 5. 9.28		☉.
	34.58.57.09				39.52	2.83			72.46.46.93		Venus.
	75.24.37.05	30,040	67.4	66.5	3. 7.60	0.86			111.14.59.99		Saturn.
	78.30.12.50				4.30.85				116.21.51.63	-14.47	A Ophi. (1 <sup>st</sup> star.)
	78.30. 9.52				4.30.85				116.21.48.65	-14.47	A Ophi. (2 <sup>d</sup> star.)
	75.59.13.25			65.9	3.42.99				113.50. 4.52	-11.40	ε <sup>2</sup> Ophiuchi.
	-15.12. 5.35	30,020	61.8	58.2	15.64				22.34.47.29	+6.86	ρ Draconis R.
	-15.12. 1.68								22.34.50.96		ρ Draconis.
	65.10.32.72				2. 3.74				102.59.44.74	+6.64	α <sup>1</sup> Capricorni R.
7.80	65.10.30.66								102.59.42.68		α <sup>1</sup> Capricorni.
7.65	65.12.48.86				2. 3.95				103. 2. 1.09	+6.71	α <sup>2</sup> Capricorni R.
	65.12.46.49								103. 1.58.72		α <sup>2</sup> Capricorni.
8.55	46.33.59.54	29,964	67.2	68.2	59.41				84.22. 7.23	+5.40	Procyon R.
	46.33.58.97								84.22. 6.66		Procyon.
9.87	35.49.42.75	29,956	68.8	70.9	40.41	4.92	10.650	5.66	73.21.38.72		☉.
	35.18. 6.84				39.64	4.86			73.21.37.70		☉.
	35.20.38.99				39.70	2.85			73. 8.48.46		Venus.
	-39.19. 2.64	29,938	69.7	72.7	45.65				-1.32.40.01	+0.16	Polaris SP. R.
	-39.19. 0.56								-1.32.37.93		Polaris SP.
8.80	62.30.47.54				1.46.72				100.19.42.54	-15.35	Spica R.
	62.30.47.47								100.19.42.47		Spica.
8.27	33. 0.14.25			72.0	36.26				70.47.58.79	-6.34	η Bootis R.
	33. 0.13.12								70.47.57.66		η Bootis.
9.12	78.24.22.75	29,950	69.5	70.4			14.47.13		115.37.42.91		).
	78.24.22.88								115.37.43.06		).
	78.24.23.45				4.25.72	53. 0.95			115.37.43.63		).
	78.24.23.97								115.37.44.15		).
	78.24.23.25								115.37.43.43		).
	77.21.15.35			69.8	4. 4.29				115.12.25.92	-16.92	σ Scorpil.
	-63.59.55.64		65.3	65.4	1.55.93				-26.14.41.29	-2.36	η Ursæ Maj. SP. R.
	-63.59.53.06								-26.14.40.71		η Ursæ Maj. SP.

Coincidence of Micrometer Wire with fixed Wire - 10', 101, 10', 106 10', 107, 10', 113, 10', 118 at the five wires.

One Micrometer Revolution = 20", 868.

Correction for Run = - 6", 4.

Adopted Zenith Point = 118°. 40'. 8". 83.

Assumed Co-latitude = 57°. 47'. 8". 28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Aug. 7	⊙ N.L. M.....	148.20	0.27,8	27,8	26,6	27,7	23,3	24,0	8,500	+ 33,54			148.20.59,64	G.
	⊙ S.L.....	148.50	2.36,0	36,4	35,0	34,3	31,9	33,7					148.52.34,02	G.
	(a) Venus S.L.....	148.25	3.51,6	52,0	50,8	49,8	47,8	48,8	11,560	- 30,32			148.28.49,32	G.
	π Scorpii.....	190.30	3.58,7	57,5	57,0	57,2	54,0	55,2					190.33.55,77	G.
	σ Scorpii.....	190.5	2.23,7	22,8	19,9	23,0	16,3	19,9					190.7.20,43	G.
	η Draconis R. M....	302.25	1.29,3	25,3	25,2	26,2	16,1	24,8					302.25.53,86	G.
	η Draconis.....	103.5	1.31,5	26,6	25,8	27,0	19,8	24,0	13,103	- 1. 2,53			103.6.25,47	G.
	η Herculis R. M....	279.45	3.30,0	27,8	27,6	27,3	20,8	27,7					279.47.23,60	G.
	η Herculis.....	125.40	4.60,0	56,2	58,3	55,6	52,7	55,0					125.44.55,25	G.
	Saturn N.L.....	186.10	0.53,8	52,8	51,4	52,2	45,7	49,7					186.10.50,77	G.
	ε Ursæ Min. R. M....	322.50	2.24,8	21,4	22,0	21,6	17,5	22,1	16,260	- 2. 8,40			322.50.12,67	G.
	ε Ursæ Minoris....	82.40	1.69,8	65,3	67,0	66,0	58,3	64,8					82.42.4,77	G.
	α Herculis R. M....	255.5	3.30,8	26,1	27,0	26,9	20,0	27,8	9,459	+ 13,52			255.8.39,22	G.
	α Herculis.....	150.20	3.40,3	37,9	39,5	36,0	33,3	37,0					150.23.36,57	G.
	ε <sup>h</sup> Ophiuchi.....	188.45	0.24,1	22,8	22,4	22,1	15,4	20,9	9,830	+ 5,78			188.45.21,20	G.
	* R. 18 <sup>h</sup> . 20 <sup>m</sup> . 21 <sup>s</sup> .	146.45	3.14,1	9,9	13,8	9,4	6,1	10,8					146.48.10,00	G.
	η Cephei R. M....	301.45	1.26,3	21,5	23,8	21,2	15,0	21,1					301.46.26,96	G.
	η Cephei.....	103.45	0.59,3	52,0	56,9	54,2	45,6	54,8					103.45.53,60	G.
Aug. 8	(b) ⊙ S.L. M.....	149.10	0.22,2	22,1	21,0	20,9	17,4	17,4	12,303	- 45,50	+3	- 0,25	149.9.34,33	G.
	⊙ N.L.....	148.35	2.62,1	61,1	61,4	58,4	54,8	57,2					148.37.58,28	G.
	(c) Venus S.L.....	148.50	1.19,6	18,0	18,4	17,0	13,8	15,8	13,778	- 1. 16,60	+4	- 0,14	148.51.16,78	G.
	Saturn N.L.....	186.10	0.59,8	55,0	57,0	56,8	47,8	55,6					186.10.55,10	G.
	ε Ursæ Min. R. M....	322.50	1.33,1	29,0	29,8	29,0	25,3	30,0					322.50.12,58	G.
	ε Ursæ Minoris....	82.40	2.11,0	4,8	7,3	7,0	0,3	6,0					82.42.5,55	G.
	λ Ophiuchi (1st star)	191.15	1.22,5	16,0	19,8	17,8	9,1	18,0	10,275	- 3,51			191.16.16,88	G.
	λ Ophi. (3d star) M....	...	...	...	...	...	...	...					191.16.13,37	G.
	θ Ophiuchi.....	189.45	0.10,3	4,0	8,2	6,9	0,0	5,6					189.45.5,82	G.
	(d) S.L. M.....	194.0	3.10,3	6,9	9,4	6,8	0,7	6,5					194.2.52,55	G.
	) S.L. M.....	...	...	...	...	...	...	...	10,893	- 13,13	-2	- 0,32	194.2.49,41	G.
	) S.L. M.....	...	...	...	...	...	...	...	10,950	- 16,43	-1	- 0,16	194.2.48,42	G.
	) S.L. M.....	...	...	...	...	...	...	...	11,006	- 17,58			194.2.47,53	G.
	) S.L. M.....	...	...	...	...	...	...	...	11,007	- 18,63	+1	+ 0,16	194.2.47,77	G.
	) S.L. M.....	...	...	...	...	...	...	...	11,007	- 18,55	+2	+ 0,32	194.6.10,25	G.
	A.S.C. 2052.....	195.5	1.14,0	10,2	13,0	11,5	4,8	9,8	8,972	+ 23,69			195.17.21,77	G.
	γ <sup>s</sup> Sagittarii.....	195.15	2.26,0	21,5	24,5	22,2	16,7	23,3					190.24.57,33	G.
	(e) λ Sagittarii.....	190.20	4.61,0	58,0	60,3	58,0	49,9	56,8					146.48.8,32	G.
	* R. 18 <sup>h</sup> . 20 <sup>m</sup> . 21 <sup>s</sup> .	146.45	3.13,2	7,8	11,8	8,0	4,1	9,7					145.11.48,08	G.
	* R. 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> ...	145.10	1.52,3	48,0	51,2	48,9	41,8	49,0	15,360	- 1. 49,61			279.11.57,71	G.
	α Lyrae R. M.....	279.10	1.39,8	34,8	36,0	35,0	26,0	34,9					126.20.20,43	G.
	α Lyrae.....	126.20	0.24,9	20,0	22,9	21,0	13,4	20,9					143.10.51,90	G.
	* R. 18 <sup>h</sup> . 37 <sup>m</sup> . 59 <sup>s</sup> .	143.10	0.55,3	50,9	54,3	51,0	49,0	52,2					143.9.2,29	G.
	* R. 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> . M.	...	...	...	...	...	...	...						
Aug. 9	(c) λ Sagittarii.....	190.20	4.65,8	63,2	64,0	65,2	57,0	62,1	8,470	+ 34,26			190.25.2,88	G.
	* R. 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> ...	145.10	1.51,5	50,1	50,9	49,9	45,1	48,0					145.11.48,80	G.
	α Lyrae R. M.....	279.10	1.29,3	24,5	25,1	24,9	14,7	24,0					279.11.57,66	G.
	α Lyrae.....	126.20	0.23,3	23,0	22,0	21,5	15,1	20,3					126.20.20,78	G.
	(f) S.L. M.....	193.10	1.25,8	22,8	22,2	23,2	16,8	21,1	11,045	- 19,67	-2	- 2,50	193.10.59,46	G.
	) S.L. M.....	...	...	...	...	...	...	...	11,103	- 20,74	-1	- 1,25	193.10.59,64	G.
	) S.L. M.....	...	...	...	...	...	...	...	11,191	- 22,52			193.10.59,11	G.
	) S.L. M.....	...	...	...	...	...	...	...	11,273	- 24,15	+1	+ 1,25	193.10.58,73	G.
	) S.L. M.....	...	...	...	...	...	...	...	11,341	- 25,44	+2	+ 2,50	193.10.58,69	G.
	β Lyrae R. M.....	273.40	4.20,1	14,6	17,0	16,3	9,9	16,7	9,158	+ 19,90			273.44.34,60	G.
	β Lyrae.....	131.45	2.45,5	43,8	45,3	42,8	36,0	41,2	6,948	+ 1. 6,02	+1	+ 0,10	255.25.27,04	G.
	ε Aquilæ R. M....	255.20	4.26,0	21,9	23,0	21,9	16,0	23,8					150.6.50,48	G.
	ε Aquilæ.....	150.5	1.54,3	49,4	51,1	51,2	45,6	51,1					192.47.38,08	G.
	τ Sagittarii.....	192.45	2.42,0	39,3	39,1	39,2	34,2	38,7					189.43.42,98	G.
	χ <sup>1</sup> Sagittarii.....	189.40	3.47,2	43,2	46,0	43,4	39,9	43,8	7,874	+ 46,71			246.12.9,93	G.
	Procyon R. M.....	246.10	1.27,5	24,6	23,0	25,7	16,1	24,5					159.20.7,35	G.
	Procyon.....	159.20	0.9,5	8,0	9,7	8,9	2,4	5,8						

Aug. 12, 0<sup>h</sup>. The Runs were taken in two positions of the Circle. (Temp. 64°.)

Coincidence at the middle taken Aug. 12, 0<sup>h</sup>. From this date the coincidence at the middle wire only is observed and the coincidences at the other wires are deduced by adding constants to that at the middle wire. (See Introduction.)

(a) Not good.

(b) Cloudy and unsatisfactory. Corrections for change of N.P.D. = - 0",63 and - 0",83.

(c) Clouds passing rapidly made the observation doubtful.

(d) Very ragged.

(e) No correction for Runs.

(f) Very uneven.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	"	"	"	"	" " "	"	"
9.67	35.34.50.81	29.958	71.2	72.3	39.94	4.89	10.661	15.47.90	73.38.22.04		☉.
	36. 6.25.19				40.72	4.96			73.38.21.33		☉.
	35.42.40.49				40.13	2.88			73.30.20.24		Venus.
	77.47.46.94	29.994	69.5	69.5	4.13.55				115.39. 8.77	-18.29	α Scorpii.
	77.21.11.60			68.6	4. 5.25				115.12.25.13	-16.92	σ Scorpii.
	-9.39.45.03				9.59				28. 7.13.66	+4.83	η Draconis R.
	-9.39.43.36								28. 7.13.33		η Draconis.
	12.58.45.23	30.000	68.6	67.5	13.02				50.46. 6.53	+2.53	η Herculis R.
	12.58.46.42								50.46. 7.72		η Herculis.
	73.24.41.94		66.1	3. 7.50	0.86	9.326			111.15. 5.01		Saturn.
8.72	-30. 4. 3.84				32.77		9.309	8.15	7.42.31.67	+5.49	ε Ursæ Min. R.
	-30. 4. 4.06								7.42.31.45		ε Ursæ Minoris.
	37.37.29.61				43.62				75.25.21.51	-1.65	α Herculis R.
	37.37.27.74								75.25.19.64		α Herculis.
7.90	75.59.12.57			64.8	3.43.19		10.691	6.09	113.50. 3.84	-11.42	♂ Ophiuchi.
	34. 2. 1.17			62.6	38.49				71.49.47.94	+2.87	* R. 18 <sup>h</sup> .20 <sup>m</sup> .21 <sup>s</sup> .
	-9. 0.18.13	30.052	61.0	56.7	9.16				28.46.40.99	+8.70	η Cephei R.
	-9. 0.15.23								28.46.43.89		η Cephei.
8.97	36.25.25.50	30.100	69.4	70.0	41.53	4.99	10.691	6.09	73.55.22.22		☉.
	35.51.49.45				40.73	4.93			73.55.21.63		☉.
	36. 5. 7.95				41.07	2.91			73.52.48.30		Venus.
	73.24.46.27	30.144	66.0	63.0	3. 9.55	0.86			111.15.11.67		Saturn.
	-30. 4. 3.55				33.13				7.42.31.60	+5.65	ε Ursæ Min. R.
	-30. 4. 3.28								7.42.31.87		ε Ursæ Minoris.
	78.30. 8.05				4.33.72				116.21.50.05	-14.51	α Ophi. (1st star)
	78.30. 4.51				4.33.72				116.21.46.54	-14.51	α Ophi. (2d star)
	76.58.56.99				4. 2.26				114.50. 7.53	-12.50	β Ophiuchi.
	51.16.43.72	30.166	64.7	62.5					118. 1.31.94		γ.
9.07	81.16.40.58						14.46.93	14.46.93	118. 1.28.80		γ.
	81.16.39.59				5.56.77	53.29.90			118. 1.27.81		γ.
	81.16.38.70								118. 1.26.92		γ.
	81.16.38.94								118. 1.27.16		γ.
	82.20. 1.42				6.41.66				120.13.51.36	-10.73	A.S.C. 2052.
	82.31.12.94				6.50.71				120.25.11.93	-10.13	γ <sup>2</sup> Sagittarii.
	77.38.48.50		63.0	60.5	4.16.63				115.30.13.41	-6.61	λ Sagittarii.
	34. 1.59.49				38.87				71.49.46.64	+3.04	* R. 18 <sup>h</sup> .20 <sup>m</sup> .21 <sup>s</sup> .
	32.25.39.25				36.56				70.13.24.09	+3.54	* R. 18 <sup>h</sup> .25 <sup>m</sup> .1 <sup>s</sup> .
	13.34.11.12				13.90				51.21.33.30	+6.21	α Lyrae R.
9.22	13.34.11.60						14.50.50	14.50.50	51.21.33.78		α Lyrae.
	30.24.43.07				33.79				68.12.25.14	+4.51	* R. 18 <sup>h</sup> .37 <sup>m</sup> .56 <sup>s</sup> .
	30.22.53.46				33.74				68.10.35.48	+4.55	* R. 18 <sup>h</sup> .38 <sup>m</sup> .48 <sup>s</sup> .
	77.38.54.05	30.132	66.5	67.3	4.12.84				115.30.15.17	-6.64	λ Sagittarii.
	32.25.39.97				36.03				70.13.24.28	+3.70	* R. 18 <sup>h</sup> .25 <sup>m</sup> .1 <sup>s</sup> .
	13.34.11.17				13.70				51.21.33.15	+6.41	α Lyrae R.
	13.34.11.95								51.21.33.93		α Lyrae.
	80.24.50.63			65.1					117. 8.57.91		γ.
	80.24.50.81								117. 8.58.09		γ.
	80.24.50.28				5.24.37	53.31.87			117. 8.57.56		γ.
8.23	80.24.49.90						14.50.50	14.50.50	117. 8.57.18		γ.
	80.24.49.86								117. 8.57.14		γ.
	19. 1.34.23				19.65				56.49. 2.16	+6.34	β Lyrae R.
	19. 1.33.02								56.49. 0.95		β Lyrae.
8.76	37.20.41.79				43.46		14.50.50	14.50.50	75. 8.33.53	+4.43	ε Aquilæ R.
	37.20.41.65								75. 8.33.39		ε Aquilæ.
	80. 1.29.25				5.12.36				117.53.49.89	-3.05	γ Sagittarii.
	76.57.34.15	30.126	65.4	63.8	4. 1.28				114.48.43.71	-0.42	γ <sup>1</sup> Sagittarii.
8.64	46.33.58.90	29.990	65.8	68.2	59.46		14.50.50	14.50.50	84.22. 6.64	+5.62	Procyon R.
	46.33.58.52								84.22. 6.26		Procyon.

Coincidence of Micrometer Wire with fixed Wire = 10', 101, 10', 106, 10', 107, 10', 113, 10', 118 at the five wires. From Aug. 9 = 10', 107, 10', 109, 10', 112, 10', 116, 10', 122.

One Micrometer Revolution = 20", 808.

Correction for Run = -6", 4. From Aug. 8 = -7", 5, the mean of two results.

Adopted Zenith Point = 112° 46' 8", 83.

Assumed Co-latitude = 37° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F								
			"	"	"	"	"	"					"	"	"	
Aug. 11	$\beta$ Ursæ Min. R. M.	315.20	2.26,2	20,8	22,8	20,4	15,2	20,7	12,435	-48,48			315.21.31,95			G.
	$\beta$ Ursæ Minoris...	90.10	0.52,1	47,8	51,4	47,2	41,9	46,5					90.10.47,62			G.
	(a) $\beta$ Bootis R. M....	281.35	0.53,0	49,4	49,4	49,0	40,1	47,9	12,430	-48,29	+1	-0,14	281.31.59,50			G.
	$\beta$ Bootis .....	123.55	2.24,3	20,7	22,0	20,9	15,5	18,0			+2	+0,52	123.57.20,17			G.
	$\alpha$ Coron. Bor. R. M.	267.45	3.31,0	26,8	27,3	25,9	22,8	26,5	8,090	+42,20			267.49.8,07			G.
	$\alpha$ Coronæ Borealis.	137.40	3.15,0	10,8	13,2	10,4	6,2	9,8					137.43.10,10			G.
	$\alpha$ Serpentis R. M....	247.25	4.22,0	17,3	18,4	17,0	13,3	17,9	7,659	+51,19			247.30.7,77			G.
	$\alpha$ Serpentis.....	158.0	2.15,2	11,0	13,9	11,4	5,8	10,6					158.2.10,77			G.
	(b) $\pi$ Scorpii.....	190.30	3.62,2	57,7	60,0	56,0	55,2	57,0					190.33.57,03			G.
	$\kappa$ Ophiuchi R. M....	250.10	1.23,9	20,5	20,3	20,2	11,0	19,8	8,630	+30,93			250.11.49,88			G.
	$\kappa$ Ophiuchi.....	155.20	0.32,2	29,1	30,4	29,0	21,3	28,1					155.20.28,23			G.
	Saturn N.L.....	186.10	1.22,0	18,9	19,3	19,8	13,2	17,6					186.11.18,15			G.
	O Herculis.....	142.30	1.36,7	31,0	35,0	31,5	27,7	31,9					142.31.31,92			G.
	A.S.C. 874. sp. n.m.	337.50	1.32,2	28,8	29,7	30,2	21,0	29,5	12,436	-48,50			337.50.39,68			G.
	A.S.C. 874. SP....	67.40	1.46,8	41,3	42,3	40,9	34,3	42,8					67.41.40,97			G.
	$\epsilon$ Sagittarii.....	193.0	2.33,4	28,6	31,4	29,4	23,4	29,8					193.2.28,72			G.
	$\beta^2$ Capricorni.....	180.10	3.33,2	28,0	32,0	28,8	24,0	29,2					180.13.28,33			G.
	(c) $\gamma$ S.L.....	187.25	1.66,2	62,2	66,4	63,4	54,9	61,0			-2	-6,10	187.26.55,75			G.
	$\gamma$ S.L. M.....	...	...	...	...	...	...	...	10,182	-1,52	-1	-3,05	187.26.57,28			G.
	$\gamma$ S.L. M.....	...	...	...	...	...	...	...	10,330	-4,55			187.26.57,30			G.
	$\gamma$ S.L. M.....	...	...	...	...	...	...	...	10,480	-7,59	+1	+3,05	187.26.57,31			G.
	$\gamma$ S.L. M.....	...	...	...	...	...	...	...	10,661	-11,25	+2	+6,10	187.26.56,70			G.
Aug. 12	(d) Venus S.L.....	150.25	0.31,9	28,2	30,3	28,4	21,5	26,3					150.25.27,65			G.
Aug. 13	Piazzi XIX. 85...	168.55	3.33,5	26,7	31,3	28,5	23,3	27,7					168.58.27,93			C.
	$\alpha$ Equulei R. M....	245.5	4.26,0	21,7	23,0	20,4	17,4	20,6	8,257	+38,70			245.9.59,50			G.
	$\alpha$ Equulei.....	160.20	2.26,0	20,2	24,2	20,0	13,8	20,4					160.22.20,38			G.
	$\alpha$ Cephei R. M....	302.25	2.28,4	25,1	26,6	25,4	15,6	23,7	8,717	+29,11			302.27.52,84			G.
	$\alpha$ Cephei.....	103.0	4.34,8	27,1	31,0	28,4	22,2	27,5					103.4.27,75			G.
	$\beta$ Aquarii R. M....	234.15	3.26,8	22,0	21,4	20,3	13,3	21,3	8,815	+27,07			234.18.47,37			G.
	$\beta$ Aquarii.....	171.10	3.35,8	30,8	35,0	30,3	26,2	31,2					171.13.30,97			G.
	$\beta$ Cephei R. M....	310.20	3.40,0	36,2	37,8	36,8	30,4	35,3	6,812	+1.8,86			310.24.44,34			G.
	$\beta$ Cephei.....	95.5	2.44,3	36,8	40,2	38,3	29,5	37,3					95.7.37,30			G.
	$\delta$ Capricorni.....	181.45	2.19,8	15,3	18,8	16,0	7,9	16,1					181.47.15,27			G.
	(e) $\epsilon$ Aquarii.....	179.30	4.67,0	61,6	66,0	64,5	55,4	62,0					179.35.2,75			G.
	(f) $\gamma$ N.L.....	176.50	4.28,9	24,0	28,3	25,4	23,2	26,5			-2	-8,14	176.54.17,18			G.
	$\gamma$ N.L. M.....	...	...	...	...	...	...	...	10,269	-3,34	-1	-4,07	176.54.17,91			G.
	$\gamma$ N.L. M.....	...	...	...	...	...	...	...	10,490	-7,89			176.54.17,43			G.
	$\gamma$ N.L. M.....	...	...	...	...	...	...	...	10,610	-10,31	+1	+4,07	176.54.19,08			G.
	$\eta$ Aquarii.....	165.50	3.54,0	47,7	55,6	49,2	44,8	48,8					165.53.49,38			G.
	$\lambda$ Aquarii.....	173.20	2.47,3	41,2	46,8	43,2	36,2	42,8					173.22.42,47			G.
Aug. 14	(g) $\odot$ S.L. M.....	150.55	2.26,1	23,0	23,4	22,0	17,0	20,9	11,771	-34,62			150.56.47,06			G.
	$\odot$ N.L.....	150.25	0.11,8	10,0	11,0	9,0	2,9	6,1					150.25.8,45			G.
	(e) Venus S.L.....	151.10	4.59,4	56,5	58,4	55,9	49,2	53,9					151.14.55,55			G.
	(h) $\star$ AR. 21 <sup>h</sup> . 9 <sup>m</sup> . 0 <sup>s</sup> ...	151.45	4.48,2	41,9	48,4	42,8	37,8	42,0					151.49.43,57			G.
	$\alpha$ Cephei R. M....	302.25	2.32,2	28,8	30,4	28,8	21,8	26,0	8,865	+26,02			302.27.53,60			G.
	$\alpha$ Cephei.....	103.0	4.35,4	28,2	31,8	28,4	22,1	27,6					103.4.28,17			G.
	$\beta$ Cephei R. M....	310.20	4.26,8	22,1	25,0	22,9	13,3	21,7	9,034	+22,50			310.24.43,75			G.
	$\beta$ Cephei.....	95.5	2.44,8	37,7	40,2	38,2	30,4	36,8					95.7.37,58			G.
	$\lambda$ Aquarii.....	173.20	2.49,0	43,2	49,0	44,1	38,7	43,7					173.22.44,17			G.
	(i) $\alpha$ U. Maj. SP. R. M.	357.50	4.41,3	36,4	39,9	37,3	32,1	37,0	10,404	-6,09			357.54.30,48			G.
	$\alpha$ Ursæ Maj. SP....	47.35	2.54,5	49,8	51,4	49,3	43,0	47,8					47.37.48,83			G.
	$\gamma$ Piscium.....	162.30	2.66,1	61,3	65,8	60,4	54,9	60,2					162.33.0,95			G.
	Uranus.....	169.50	3.41,9	35,8	40,9	36,9	31,8	37,2					169.53.36,82			G.
	$\lambda$ Piscium.....	164.0	3.33,3	27,1	31,9	27,1	19,8	28,6					164.3.27,38			G.
Aug. 15	Venus S.L.....	151.40	0.17,0	15,0	17,8	16,0	9,2	12,4					151.40.14,52			G.
	$\epsilon$ Cephei R. M....	305.55	0.38,4	34,8	34,9	34,8	29,2	33,8	12,210	-43,79			305.54.50,43			G.
	$\epsilon$ Cephei.....	99.35	2.36,0	29,2	33,0	30,8	25,0	30,7					99.37.30,37			G.

Coincidence at the middle wire and Runs taken Aug. 17, 2<sup>h</sup>. (Temp. 60°.) The coincidence was found to be unaltered.

- (a) Faint. (b) Very faint: bisection uncertain.  
 (c) Considerable waving.  
 (d) The micrometer for opposite Limb was written down 9,678, but as S.L. was certainly observed, the number of revolutions has been altered to 10.

- (e) No correction for Runs.  
 (f) Very cloudy and doubtful: quite clouded at the 5th wire. (g) Without dark glass: doubtfully.  
 (h) Preceding division bisected.  
 (i) Mercury agitated by the wind.

Sec. of apparent Zenith Point	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
9.79	-22.35.23.12	29.486	66.3	65.2	23.19				15.11.21.97	+2.95	$\beta$ Ursæ Min. R.
	-22.35.21.21								15.11.23.88		$\beta$ Ursæ Minoris.
9.84	11.11.9.33				11.03				48.58.28.64	+0.12	$\beta$ Bootis R.
	11.11.11.34								48.58.30.65		$\beta$ Bootis.
9.09	24.57.0.76		65.6	64.2	25.99				62.44.35.03	-1.97	$\alpha$ Coronæ Bor. R.
	24.57.1.27								62.44.35.54		$\alpha$ Coronæ Bor.
9.27	45.16.1.06				56.33				83.4.5.67	-7.60	$\alpha$ Serpentis R.
	45.16.1.94								83.4.6.55		$\alpha$ Serpentis.
9.66	77.47.48.20	29.500	64.0	62.3	4.12.16				115.39.8.64	-18.20	$\star$ Scorpii.
	42.34.18.95				51.49				80.22.18.72	-3.45	$\star$ Ophiuchi R.
	42.34.19.40								80.22.19.17		$\star$ Ophiuchi.
	73.25.9.32				3.5.91	0.86	9.419	7.23	111.15.29.88		Saturn.
	29.45.23.09		62.0	59.8	32.23				67.33.3.60	+5.58	O Herculis.
10.33	-45.4.30.85				56.47				-7.18.19.04	-5.97	A.S.C. 874 sr. n.
	-45.4.27.86								-7.18.16.05		A.S.C. 874. SP.
	80.16.19.89	29.496	60.0	56.0	5.19.13				118.8.47.30	+3.22	$\epsilon$ Sagittarii.
	67.27.19.50				2.15.92				105.16.43.70	+6.96	$\beta^*$ Capricorni.
	74.40.46.92								111.23.8.86		$\gamma$ .
	74.40.48.45								111.23.10.39		$\gamma$ .
	74.40.48.17				3.24.17	53.7.49		15.3.02	111.23.10.41		$\gamma$ .
	74.40.48.48								111.23.10.42		$\gamma$ .
	74.40.47.87								111.23.9.81		$\gamma$ .
	57.39.18.82	29.532	64.6	64.3	43.14	3.03	10.678	5.90	75.27.1.31		Venus.
	56.12.18.17	29.544	60.0	57.1	1.24.60				94.0.51.05	+3.36	Piazzi XIX. 85.
9.94	47.36.10.26	29.524	57.8	55.3	1.2.29				85.24.20.83	+12.96	$\alpha$ Equulei R.
	47.36.10.62								85.24.21.19		$\alpha$ Equulei.
10.30	-9.41.43.08				9.73				28.5.15.47	+10.12	$\alpha$ Cephei R.
	-9.41.42.01								28.5.16.54		$\alpha$ Cephei.
9.17	58.27.22.39				1.32.48				96.16.3.15	+14.06	$\beta$ Aquarii R.
	58.27.21.21								96.16.1.97		$\beta$ Aquarii.
10.82	-17.38.34.58				18.11				20.8.15.59	+9.26	$\beta$ Cephei R.
	-17.38.32.46								20.8.17.71		$\beta$ Cephei.
	60.1.5.51			54.5	2.27.54				106.50.41.33	+15.40	$\delta$ Capricorni.
	60.48.52.99	29.512	57.4	54.2	2.12.36				104.38.13.63	+17.16	$\delta$ Aquarii.
	64.8.7.42								101.22.6.52		$\gamma$ .
	64.8.8.13				1.57.09	50.25.78		15.19.51	101.22.7.25		$\gamma$ .
	64.8.7.67								101.22.6.77		$\gamma$ .
	64.8.9.32								101.22.8.42		$\gamma$ .
	53.7.39.62	29.500	56.0	53.8	1.15.94				90.56.3.84	+18.41	$\eta$ Aquarii.
	60.36.32.71				1.40.96				98.25.21.95	+20.32	$\lambda$ Aquarii.
	38.10.37.50	29.440	61.8	62.0	44.02	5.21		15.49.10	75.42.35.29		$\odot$ .
	37.38.58.60				43.20	5.14			75.42.34.13		$\odot$ .
	38.28.45.79				44.50	3.09	10.566	4.74	76.16.30.74		Venus.
	39.3.33.81	29.616	56.0	55.3	46.32				76.51.28.41	+13.20	$\star$ Al. 21 <sup>h</sup> . 9 <sup>m</sup> . 0 <sup>s</sup> .
10.89	-9.41.43.84				9.76				28.5.14.68	+10.48	$\alpha$ Cephei R.
	-9.41.41.59								28.5.16.91		$\alpha$ Cephei.
10.67	-17.38.33.90				18.17				20.8.16.12	+9.64	$\beta$ Cephei R.
	-17.38.32.18								20.8.17.95		$\beta$ Cephei.
	60.36.34.41		55.6	54.0	1.41.31				98.25.21.00	+20.41	$\lambda$ Aquarii.
9.66	-65.8.20.72				2.2.93				27.23.15.37	+3.82	$\alpha$ Urs. Maj. sr. n.
	-65.8.20.93								27.23.15.58		$\alpha$ Urs. Maj. SP.
	49.46.51.19			53.7	1.7.66				87.35.7.13	+20.37	$\gamma$ Piscium
	57.7.27.06				1.28.42	0.57			94.56.3.39		Uranus.
	51.17.17.92				1.11.38				89.5.37.28	+21.77	$\lambda$ Piscium.
	38.34.4.76	29.688	61.5	62.4	45.52	3.12	10.598	3.08	76.41.50.36		Venus.
10.40	-13.8.40.67	29.824	58.1	56.6	13.40				24.38.14.21	+9.74	$\epsilon$ Cephei R.
	-13.8.39.39								24.38.15.49		$\epsilon$ Cephei.

Coincidence of Micrometer Wire with fixed Wire = 107,102, 107,109, 107,112, 107,116, 107,122 at the five wires.

One Micrometer Revolution = 20".868.

Correction for Run = -7".5. From Aug. 13 = -5".0.

Adopted Zenith Point = 112°.46'.8".83. From Aug. 13 = 112°.46'.9".76.

Assumed Co-latitude = 37°.47'.8".38.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Aug. 15	$\alpha$ Pegasi R. M. ....	254.50	4.23,7	18,2	20,9	17,9	11,7	17,8	7,838	+47,45			254.55. 5,10	G.
	$\alpha$ Pegasi .....	150.35	2.16,4	11,8	15,7	11,8	6,2	11,2					150.37. 11,82	G.
	$\gamma$ Piscium. ....	162.30	2.64,0	59,0	63,0	59,2	55,8	58,8					162.32. 59,47	G.
	$\gamma$ Cephei R. M. ....	317.15	2.23,2	18,1	20,3	20,0	11,9	18,7	9,946	+3,47			317.17. 21,79	G.
	$\gamma$ Cephei .....	88.10	4.64,5	57,5	62,4	57,9	53,3	57,8					88.14. 58,07	G.
	$\lambda$ Piscium. ....	164.0	3.31,5	27,2	30,0	26,4	19,8	27,8					164.3. 26,55	G.
	) N.L. ....	164.20	5.7,2	3,3	9,7	3,2	1,8	5,8			-2	-8,86	164.24. 55,46	G.
	) N.L. M. ....	...	...	...	...	...	...	...	10,328	-4,57	-1	-4,43	164.24. 55,32	G.
	) N.L. M. ....	...	...	...	...	...	...	...	10,569	-9,54			164.24. 54,78	G.
	) N.L. M. ....	...	...	...	...	...	...	...	10,728	-12,77	+1	+4,43	164.24. 55,98	G.
	) N.L. M. ....	...	...	...	...	...	...	...	10,965	-17,58	+2	+8,86	164.24. 55,60	G.
	) N.L. M. ....	...	...	...	...	...	...	...						
Aug. 17	Venus S.L. ....	152.30	1.60,8	58,0	61,3	57,4	52,9	57,8					152.31. 57,72	G.
Aug. 18	$\odot$ S.L. M. ....	152.10	3.29,8	27,3	30,0	26,9	22,1	27,2	11,760	-34,39			152.12. 52,26	G.
	$\odot$ N.L. ....	151.40	1.15,9	13,0	15,8	13,4	9,3	12,6					151.41. 13,13	G.
	(a) Venus S.L. ....	152.55	3.21,8	19,0	22,7	19,0	15,3	20,1					152.58. 19,10	G.
Aug. 20	$\odot$ S.L. M. ....	152.50	2.23,4	23,2	23,3	21,8	17,5	22,8	10,687	-11,99			152.52. 9,46	G.
	$\odot$ N.L. ....	152.20	0.31,9	30,6	30,3	29,8	24,0	29,1					152.20. 29,17	G.
	(b) ) N.L. M. ....	138.15	3.52,2	52,5	52,0	49,0	48,0	48,9	9,555	+11,41	-2	-3,32	138.18. 57,61	G.
	) N.L. M. ....	...	...	...	...	...	...	...	9,623	+10,15	-1	-1,66	138.18. 58,01	G.
	) N.L. M. ....	...	...	...	...	...	...	...	9,697	+8,66			138.18. 58,18	G.
	) N.L. M. ....	...	...	...	...	...	...	...	9,767	+7,28	+1	+1,66	138.18. 58,46	G.
	) N.L. M. ....	...	...	...	...	...	...	...	9,868	+5,29	+2	+3,32	138.18. 58,13	G.
	Capella R. M. ....	286.20	3.31,1	27,8	26,5	26,9	20,9	28,2	11,117	-20,97			286.23. 5,11	G.
	Capella .....	119.5	4.18,3	14,3	15,8	13,8	10,1	13,9					119.9. 13,35	G.
	$\beta$ Tauri R. M. ....	268.55	4.44,4	42,6	42,0	40,4	37,4	41,7	4,070	+2. 6,08			269.1. 46,38	G.
	$\beta$ Tauri .....	136.30	0.36,0	33,0	34,4	32,3	28,0	32,8					136.30. 32,62	G.
	$\zeta$ Orionis .....	166.55	1.26,4	24,5	26,0	21,8	23,9	25,0					166.59. 23,55	G.
Aug. 21	$\odot$ N.L. M. ....	152.35	4.25,9	26,7	25,4	23,3	25,5	24,6	7,062	+1. 3,64			152.40. 27,82	G.
	$\odot$ S.L. ....	153.10	2.8,0	9,6	9,5	7,9	4,0	6,5					153.12. 7,08	G.
	Venus S.L. ....	154.15	4.19,3	19,7	18,6	16,1	17,1	16,4					154.19. 16,83	G.
	$\delta$ Equulei .....	155.35	1.14,3	11,8	12,8	9,7	8,0	11,5			+2	+0,10	155.36. 11,17	G.
	(c) $\alpha$ Cephei R. M. ....	302.25	1.37,0	33,8	33,4	32,3	27,2	32,8	6,090	+1.23,93			302.27. 56,31	G.
	$\alpha$ Cephei .....	103.0	4.31,9	29,1	28,8	27,8	24,6	28,6					103.4. 27,40	G.
	$\beta$ Cephei R. M. ....	310.20	4.49,3	45,0	47,8	44,3	40,7	36,8	10,047	+1,35			310.24. 45,87	G.
	$\beta$ Cephei .....	95.5	2.38,0	33,2	33,5	33,2	26,7	33,9					95.7. 32,48	G.
	$\alpha$ Aquarii R. M. ....	239.25	2.39,2	35,8	35,4	34,3	31,3	37,1	5,508	+1.36,07			239.29. 10,99	G.
	$\alpha$ Aquarii .....	166.0	3.10,3	7,5	10,0	5,5	5,0	7,1					166.3. 6,82	G.
	$\theta$ Aquarii .....	173.30	1.42,5	39,6	41,0	39,3	33,9	40,2					173.31. 39,02	G.
	) N.L. ....	...	...	...	...	...	...	...						
Aug. 22	(d) $\odot$ S.L. M. ....	153.30	2.25,8	24,5	25,4	22,5	22,0	23,4	10,387	-5,73			153.32. 17,64	G.
	$\odot$ N.L. ....	153.0	0.40,8	39,8	40,5	39,3	36,2	38,7					153.0. 39,05	G.
	(e) $\rho$ Draconis R. ....	307.55	3.23,8	18,5	21,5	18,8	12,2	20,8					307.58. 18,47	G.
	$\rho$ Draconis .....	97.30	3.64,8	58,4	63,4	59,1	54,4	59,9					97.33. 59,03	G.
	$\Sigma$ 2652 .....	103.20	2.41,4	35,2	37,4	35,5	29,8	36,0					103.22. 35,25	G.
	3 Capricorni .....	177.45	1.12,8	9,0	12,0	9,1	4,8	9,3					177.46. 9,22	G.
Aug. 24	(f) $\odot$ S.L. M. ....	154.10	3.20,0	16,8	17,6	16,9	12,0	19,2	10,474	-7,55			154.13. 8,75	G.
	$\odot$ N.L. ....	153.40	1.32,0	29,2	28,2	29,4	23,9	29,8					153.41. 28,38	G.
	Venus S.L. ....	155.40	2.54,0	53,2	54,2	52,4	49,6	51,6					155.42. 51,83	G.
	$\alpha$ Herculis R. M. ....	255.5	3.21,8	17,8	18,3	17,0	12,8	19,0	8,954	+24,17			255.8. 41,15	G.
	$\alpha$ Herculis .....	150.20	3.39,6	37,4	38,9	37,0	34,8	36,9					150.23. 36,57	G.
	41 Ophiuchi .....	165.10	3.27,0	25,5	26,2	24,9	20,2	25,3					165.13. 24,03	G.
	$\beta$ Ophiuchi .....	160.15	4.59,8	37,8	39,7	35,9	34,7	38,0					160.19. 36,55	G.
	A.S.C. 2042. M. ....	196.30	3.25,7	23,0	21,5	20,9	16,8	21,2	20,599	-3.38,85			196.29. 41,87	G.
	* R. 17 <sup>h</sup> . 41 <sup>m</sup> . 15 <sup>s</sup> . ....	162.55	1.61,2	59,4	62,3	60,3	55,1	58,3					162.56. 58,95	G.
	$\theta$ Herculis .....	127.40	2.9,6	6,8	8,0	6,2	1,8	4,9					127.42. 5,72	G.
	* R. 18 <sup>h</sup> . 8 <sup>m</sup> . 57 <sup>s</sup> . ....	164.0	0.28,8	27,3	28,3	27,1	20,9	26,7					164.0. 26,42	G.
	) N.L. ....	...	...	...	...	...	...	...						

Aug. 23, 23<sup>h</sup>. The Runs were taken in two positions of the Circle, and the coincidence at the middle wire was found to be unaltered. (Temp. 66°.)

(a) Cloudy. (b) Good.  
 (c) Faint from clouds: in the direct observation the star was scarcely visible. The apparent zenith point given by these observations is not used in determining the adopted zenith point.

(d) Without the dark glass.  
 (e) Accidentally on the fixed wire.  
 (f) S.L. without the dark glass.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Atmos.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
8.46	37.51.46	29,824	58.1	56.6	44.56				75.38.57.50		$\alpha$ Pegasi R.
	37.51.20								75.38.54.90	+18.15	$\alpha$ Pegasi.
9.93	49.46.49.71			56.1	1.7.81				87.35.5.80	+20.52	$\gamma$ Piscium.
	-24.31.12.03			55.4	26.23				13.15.30.02	+6.99	$\gamma$ Cephei R.
	-24.31.11.69								13.15.30.86	+21.89	$\gamma$ Cephei.
	51.17.16.79				1.11.63				89.5.36.70		$\lambda$ Piscium.
	51.38.45.70								88.57.59.88		$\delta$ .
	51.38.45.56								88.57.59.74		$\delta$ .
	51.38.45.02				1.12.55	44.43.14		15.36.49	88.57.59.20		$\delta$ .
	51.38.46.22								88.58.0.40		$\delta$ .
	51.38.45.84								88.58.0.02		$\delta$ .
	39.45.47.96	29,090	59.8	59.2	46.29	3.18	10,598	5.08	77.33.34.27		Venus.
9.23	39.26.42.50	29,308	59.8	61.0	45.95	5.36			76.58.41.57		$\odot$ .
	38.55.3.37				45.09	5.30		15.49.80	76.58.41.24		$\odot$ .
	40.12.9.34	29,324	60.0	61.2	47.20	3.21	10,591	5.00	77.59.56.61		Venus.
	40.5.59.70	29,910	66.6	69.4	47.20	5.43			77.37.59.55		$\odot$ .
	39.34.19.41				46.32	5.37		15.50.20	77.37.58.84		$\odot$ .
	25.32.47.85	29,908	63.3	61.7					63.11.11.94		$\delta$ .
	25.32.48.25								63.11.12.34		$\delta$ .
	25.32.48.42				27.21	25.20.70		16.9.30	63.11.12.51		$\delta$ .
	25.32.48.70								63.11.12.79		$\delta$ .
	25.32.48.37								63.11.12.46		$\delta$ .
9.50	6.23.4.65			63.5	6.35				44.10.19.28	+3.69	Capella R.
	6.23.5.59								44.10.18.22		Capella.
	23.44.23.38				24.95				61.31.56.61	+8.69	$\beta$ Tauri R.
	23.44.22.86								61.31.56.09	+17.44	$\beta$ Tauri.
	54.13.13.79			64.5	1.18.40				92.1.40.47		$\zeta$ Orionis.
	39.54.18.06	29,884	71.4	73.9	46.42	5.41			77.57.57.75		$\odot$ .
	40.25.57.32				47.29	5.47		15.50.40	77.57.57.02		$\odot$ .
	41.33.7.07	29,876	72.2	75.2	49.05	3.31	10,611	5.21	79.20.55.88		Venus.
	42.50.1.41	29,782	66.3	64.5	52.23				80.38.1.92	+14.15	$\epsilon$ Equulei.
	-9.41.46.55				9.63				28.5.12.10	+12.97	$\alpha$ Cephei R.
	-9.41.42.36								28.5.16.29		$\alpha$ Cephei.
11.86	-17.38.36.11				17.93				20.8.14.24	+12.24	$\beta$ Cephei R.
	-17.38.37.28								20.8.13.07		$\beta$ Cephei.
	53.16.58.77	29,772	66.0	64.2	1.15.47				91.5.22.52	+17.40	$\alpha$ Aquarii R.
	53.16.57.06				1.40.37				91.5.20.81	+18.29	$\alpha$ Aquarii.
	60.45.29.26								98.34.17.91		$\theta$ Aquarii.
	40.46.7.88	29,754	67.4	68.4	48.14	5.51			78.18.8.19		$\odot$ .
	40.14.29.29				47.24	5.45		15.50.60	78.18.9.96		$\odot$ .
	-15.12.8.71	29,784	61.3	59.4	15.48				22.34.44.09	+12.46	$\rho$ Draconis R.
	-15.12.10.73								22.34.42.07	+12.80	$\rho$ Draconis.
	-9.23.34.51				9.43				28.23.24.34	+7.09	$\Sigma$ 2652.
	64.59.59.46				2.1.52				102.49.9.26		$\delta$ Capricorni.
8.75	41.26.53.99	29,940	67.0	67.8	49.70	5.59			78.59.0.38		$\odot$ .
	40.55.18.62				48.79	5.53		15.51.00	78.59.1.16		$\odot$ .
	42.56.42.07	29,924	66.2	66.1	52.24	3.41	10,636	5.47	80.44.33.71		Venus.
	37.37.28.61				43.51				75.25.20.40	-0.22	$\alpha$ Herculis R.
	37.37.26.81								75.25.18.60		$\alpha$ Herculis.
	52.27.14.27			64.4	1.13.59				90.15.36.14	4.60	$\lambda$ Ophiuchi.
	47.33.26.79				1.1.89				85.21.36.96	-1.29	$\beta$ Ophiuchi.
	43.43.32.11				7.54.00				121.38.34.39	-12.60	A.S.C. 2042.
	50.10.49.19				1.7.86				87.59.5.33	-1.64	$\epsilon$ R. 17. 41. 15.
	14.55.55.96				15.11				52.48.19.35	+7.14	$\theta$ Herculis.
	51.14.16.66			63.2	1.10.62				89.2.35.56	+0.05	$\epsilon$ R. 18. 8. 57.

Coincidence of Micrometer Wire with fixed Wire = 10", 102, 10", 109, 10", 112, 10", 116, 10", 122 at the five wires.

One Micrometer Revolution = 20", 868.

Correction for Run = 5", 0. From Aug. 20 = -7", 2, adopted from two determinations.

Adopted Zenith Point = 112°. 46'. 9", 76.

Assumed Co-latitude = 37°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Aug. 24	* R. 18 <sup>h</sup> . 20 <sup>m</sup> . 21 <sup>s</sup> .	146.45	3.12,3	10,1	12,2	8,5	7,7	10,3					146.48. 9,42	G.
	* R. 18 <sup>h</sup> . 30 <sup>m</sup> . 9 <sup>s</sup> .	113.20	2.20,2	16,3	17,8	16,6	9,9	16,3					113.22. 15,63	G.
	* R. 18 <sup>h</sup> . 30 <sup>m</sup> . 48 <sup>s</sup> . M.	...	...	...	...	...	...	...	18,272	-2.50,28			113.19.25,35	G.
	(a) 55 Camel. sp. n. m.	351.35	2.22,5	17,8	21,9	19,4	13,8	19,4	14,871	-1.39,31			351.35.39,27	G.
	55 Camelop. SP...	53.55	1.40,1	36,1	35,8	35,4	29,7	37,1					53.56.35,32	G.
	Σ 2652.....	103.20	2.41,7	37,6	38,1	36,8	31,6	36,9					103.22.36,50	G.
	3 Capricorni.....	177.45	1.10,3	9,0	10,2	7,7	2,3	7,1					177.46. 7,48	G.
	o U. Maj. SP. R. M.	359.15	2.21,7	17,2	19,8	17,3	12,8	18,3	12,437	-48,52			359.16.28,78	G.
	o Urse Majoris SP.	46.15	0.54,4	50,9	51,2	50,9	43,2	52,2					46.15.50,27	G.
	π <sup>1</sup> U. Maj. SP. R. M.	355.35	2.34,1	30,5	33,4	31,0	26,5	32,5	6,352	+1.18,46			355.38.49,19	G.
	π <sup>1</sup> Urse Maj. SP...	49.50	3.37,2	33,2	32,8	31,6	27,8	35,0					49.53.32,08	G.
Aug. 25	(b) ⊙ N.L. M.....	154. 0	2.22,8	19,6	20,6	18,4	13,2	19,4	10,554	-9,22			154. 2. 9,23	G.
	⊙ S.L.....	154.30	3.53,8	51,5	53,9	51,8	47,4	52,1					154.33.50,83	G.
	(c) Venus S.L.....	156.10	1.16,8	16,0	15,6	15,4	9,4	12,3					156.11.13,95	G.
	(d) Mercury, center...	150.55	1. 6,3	6,7	7,0	5,9	1,8	3,0					150.56. 4,85	G.
Aug. 26	⊙ S.L. M.....	154.55	0.26,8	26,8	25,9	25,5	21,2	24,0	12,082	-41,11			154.54.43,82	G.
	⊙ N.L.....	154.20	3. 5,0	4,3	6,1	3,2	0,7	3,2					154.23. 3,02	G.
	α U. Maj. R. M.	303.10	0.33,2	29,9	30,3	29,0	21,1	28,2	11,956	-38,47			303. 9.50,03	G.
	α Urse Majoris...	102.20	2.36,2	33,5	33,0	32,3	28,8	30,0					102.22.31,70	G.
	κ Capricorni.....	184.30	1.26,0	22,8	25,4	23,6	15,2	23,7					184.31.22,45	G.
	α Aquarii R. M...	239.25	2.32,3	27,1	28,1	26,6	21,8	29,0	4,982	+1.47,06			239.29.13,96	G.
	α Aquarii.....	166. 0	3. 6,7	3,7	9,0	4,2	0,0	4,8					166. 3. 3,98	G.
	ε Cephei R. M...	296.45	3.18,4	12,8	15,8	13,8	5,6	14,3	9,687	+8,87			296.48.21,55	G.
	ε Cephei.....	108.40	3.63,8	58,5	62,2	59,3	52,4	59,0					108.43.58,25	G.
	(c) ζ Aquarii.....	165.45	2.40,7	36,9	40,3	37,0	32,8	39,7					165.47.37,27	G.
	m U. Maj. SP. R. M.	2.35	2.42,2	39,0	41,2	39,3	36,3	40,9	13,176	-1. 3,93			2.36.35,25	G.
	m Urse Majoris SP.	42.55	0.48,9	44,8	43,5	44,9	39,4	45,9					42.55.44,38	G.
	α U. Maj. SP. R. M.	357.55	0.26,0	21,2	23,7	23,1	17,2	23,0	12,429	-48,36			357.54.33,91	G.
Aug. 27	α Urse Majoris SP.	47.35	2.51,0	46,1	45,9	45,3	40,2	46,9					47.37.45,23	G.
	(f) ⊙ N.L. M.....	154.40	4.20,4	17,8	20,2	15,7	16,5	16,4	10,786	-14,06			154.44. 2,74	G.
	⊙ S.L.....	155.15	0.48,0	46,5	48,0	44,4	40,9	43,2					155.15.44,98	G.
	(g) Venus S.L.....	157. 5	3.47,0	44,4	45,5	43,8	42,1	43,2			+3	-0,82	157. 8.42,63	G.
	γ Cygni R. M....	280.15	3.30,5	26,9	28,6	26,7	22,0	27,9	9,571	+11,28			280.18.37,55	G.
	γ Cygni.....	125.10	3.44,0	40,8	42,9	40,8	37,4	40,4					125.13.40,17	G.
	α Aquarii R. M...	239.25	3.41,8	38,0	38,7	36,1	35,2	38,9	8,374	+36,28			239.29.13,53	G.
	α Aquarii.....	166. 0	3. 7,3	4,0	8,8	4,4	0,8	5,0					166. 3. 4,30	G.
	ε Cephei R. M....	296.45	3.16,2	12,9	14,8	11,8	6,4	12,9	9,628	+10,10			296.48.21,83	G.
	ε Cephei.....	108.40	3.63,0	58,8	62,8	58,9	55,0	58,8					108.43.58,62	G.
	(c) ζ Aquarii.....	165.45	2.39,4	36,2	39,8	36,0	33,8	38,2					165.47.36,60	G.
Aug. 28	β Lyrae R. M....	273.40	3.24,6	18,1	22,0	19,8	13,0	20,3	6,148	+1.22,82	+2	-0,40	273.44.41,24	G.
	β Lyrae.....	131.45	2.41,3	37,1	37,7	37,9	31,8	37,8			+3	+0,89	131.47.37,52	G.
	* R. 18 <sup>h</sup> . 48 <sup>m</sup> . 4 <sup>s</sup> .	166.55	2.45,1	41,1	42,1	39,9	38,7	41,1			+2	-0,02	166.57.40,66	G.
	η Lyrae R. M....	279.25	1.28,4	24,8	24,4	24,5	19,0	24,3	10,701	-12,39			279.26.11,51	G.
	η Lyrae.....	126. 5	1.10,8	7,9	8,2	6,9	0,1	7,0					126. 6. 6,55	G.
	(h) f Aquila.....	170.35	4.61,0	59,4	59,9	58,6	52,2	56,8					170.39.57,98	G.
	Piazzi XIX. 85...	168.55	3.33,9	29,3	30,1	29,4	26,4	30,8					168.58.29,12	G.
	P Aquile.....	169.55	2.27,8	22,2	24,2	23,2	17,8	23,4					169.57.22,52	G.
	γ Aquila R. M....	250.45	2.25,0	19,9	20,0	19,4	13,7	20,3	8,129	+41,28			250.48. 0,43	G.
	γ Aquila.....	154.40	4.22,2	18,2	20,7	17,4	18,2	18,9					154.44.18,20	G.
	β Aquile R. M....	246.30	4.23,5	19,6	19,4	17,7	12,4	20,0	7,636	+51,57			246.35. 9,27	G.
	β Aquile.....	158.55	2.12,1	9,3	10,1	9,0	2,0	8,2					158.57. 7,92	G.
	Σ 2652.....	103.20	2.10,1	36,0	34,6	35,4	28,6	33,8					103.22.34,12	G.
Aug. 29	3 Capricorni.....	177.45	1.12,8	11,1	10,7	9,0	4,3	8,4					177.46. 9,10	G.
	(i) Mercury, center...	150.25	2.27,9	26,6	26,4	25,8	23,8	23,6					150.27.25,08	G.
Aug. 29	⊙ N.L. M.....	155.25	1.33,2	34,8	32,0	30,3	30,0	29,7	9,988	+2,49			155.26.33,79	G.
	⊙ S.L.....	155.55	3.19,9	20,2	19,5	17,3	16,9	16,8					155.58.17,62	G.

Coincidence at the middle wire and Runs taken Sept. 1, 2<sup>h</sup>. (Temp. 73°,5.)

- (a) A faint blur. The observation is not used for determining the adopted zenith point.  
 (b) Misty. (c) Cloudy. (d) Passing clouds.  
 (e) The northern star was bisected by the micrometer wire. Micrometer readings = 10°,252 and 10°,241. Differences of N.P.D. = 2°,92 and 2°,70.

- (f) Without the dark glass.  
 (g) Correction for change of N.P.D. = -1°,01. Adopted coincidence at three intervals from middle wire = 10°,123.  
 (h) No correction for Runs.  
 (i) Faint.



Sec. of Apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
-	-	Inch.	-	-	-	-	-	-	-	-	-
7.30	34. 1. 59.66	29,924	66.2	63.2	38.35				71. 49. 46.29	+ 5.15	* R. 18 <sup>h</sup> . 20 <sup>m</sup> . 21 <sup>s</sup> .
	0. 36. 5.87				0.60				38. 23. 14.75	+ 10.50	* R. 18 <sup>h</sup> . 30 <sup>m</sup> . 9 <sup>s</sup> .
	0. 33. 15.59				0.60				38. 20. 24.47	+ 10.53	* R. 18 <sup>h</sup> . 30 <sup>m</sup> . 48 <sup>s</sup> .
	- 58. 49. 29.51				1. 34.10				- 21. 3. 55.33	- 7.76	55 Camel. SP. R.
	- 58. 49. 34.44				9.45				- 21. 4. 0.26	+ 13.39	55 Camelop. SP.
	- 9. 23. 33.26				2. 1.81				28. 23. 25.57	+ 7.13	Σ 2652.
9.53	64. 59. 57.72			59.4	2. 10.85				102. 49. 7.81	- 6.70	3 Capricorni.
	- 66. 30. 19.02				2. 10.85				- 28. 45. 21.59	- 7.46	α U. Maj. SP. R.
	- 66. 30. 19.49				1. 51.25				- 28. 45. 22.06	- 7.46	α Ursa Maj. SP.
10.64	- 62. 52. 39.43								- 25. 7. 22.40		π <sup>4</sup> U. Maj. SP. R.
	- 62. 52. 37.68								- 25. 7. 20.65		π <sup>4</sup> Ursa Maj. SP.
	41. 15. 59.47	29,914	63.6	66.4	49.48	5.57	10,651	15. 51.20	79. 19. 42.86		⊙.
	41. 47. 41.07				50.40	5.63			79. 19. 42.92		⊙.
	43. 25. 4.19				53.30	3.45			81. 12. 56.69		Venus.
	38. 9. 55.09				44.47	6.77			75. 57. 41.07		Mercury.
10.87	42. 8. 34.06	29,992	67.4	67.6	51.03	5.67		15. 51.40	79. 40. 36.30		⊙.
	41. 36. 53.26				50.10	5.61			79. 40. 37.43		⊙.
	- 10. 23. 40.27				10.33				27. 23. 17.68	- 7.23	α Ursa Maj. R.
	- 10. 23. 38.06								27. 23. 19.89		α Ursa Majoris.
8.97	71. 43. 12.69	29,990	61.8	59.1	2. 52.21				109. 35. 13.18	+ 14.86	α Capricorni.
	53. 16. 55.80				1. 16.80				91. 5. 20.88	+ 17.90	α Aquarii R.
9.90	53. 16. 54.22				4.05				91. 5. 19.30	+ 15.34	α Aquarii.
	- 4. 2. 11.79				1. 16.09				33. 44. 52.44	+ 19.43	ε Cephei R.
9.82	- 4. 2. 11.51				2. 34.98				33. 44. 52.72	- 7.34	ε Cephei.
	53. 1. 27.51				2. 3.58				90. 49. 51.88	- 7.38	ζ Aquarii.
	- 60. 50. 25.49								- 32. 5. 52.19		m U. Maj. SP. R.
9.57	- 60. 50. 25.38								- 32. 5. 52.08		m Ursa Maj. SP.
	- 65. 8. 24.15								- 27. 23. 19.25		α U. Maj. SP. R.
8.86	- 65. 8. 24.53	29,992	64.4	65.5	50.93	5.65	10,658	15. 51.70	80. 1. 38.24		⊙.
	41. 57. 52.98				51.87	5.71			80. 1. 37.96		⊙.
	42. 29. 35.22				53.23	3.52			82. 10. 27.28		Venus.
	44. 22. 32.87				12.58				50. 14. 53.07	+ 14.43	γ Cygni R.
8.92	12. 27. 32.21	29,992	64.7	62.7	12.58				50. 14. 51.27	+ 18.00	γ Cygni.
	12. 27. 30.41				1. 16.59				91. 5. 21.10	+ 15.70	α Aquarii R.
10.23	53. 16. 56.23								91. 5. 19.41	+ 15.70	α Aquarii.
	53. 16. 54.54				1. 15.88				33. 44. 52.17	+ 19.53	ε Cephei R.
	- 4. 2. 12.07	30,060	65.8	63.4	19.67				33. 44. 53.10		ε Cephei.
8.08	- 4. 2. 11.14								90. 49. 51.00		ζ Aquarii.
	53. 1. 26.84								56. 48. 56.47	+ 9.84	β Lyrae R.
	19. 1. 28.52				1. 18.87				56. 48. 55.71	+ 2.56	β Lyrae.
	19. 1. 27.76				13.52				91. 59. 58.05	+ 11.74	* R. 18 <sup>h</sup> . 48 <sup>m</sup> . 4 <sup>s</sup> .
9.03	54. 11. 30.90				1. 30.64				51. 7. 20.05	+ 3.62	η Lyrae R.
	13. 19. 58.23				1. 25.00				51. 7. 18.59	+ 4.27	η Lyrae.
	13. 19. 56.79				1. 28.35				95. 42. 27.14	+ 5.30	f Aquilae.
9.32	57. 53. 48.22				51.36				94. 0. 52.64	+ 9.30	Piazzi XIX. 85.
	56. 12. 19.36								94. 59. 49.39	+ 8.76	P Aquilae.
	57. 11. 12.76								79. 46. 8.97	+ 8.76	γ Aquilae R.
	41. 58. 9.33								79. 46. 8.08	+ 14.57	γ Aquilae.
8.60	41. 58. 8.44	30,150	72.0	66.6	43.89	6.12		15. 52.10	83. 59. 8.25	+ 7.18	β Aquilae R.
	46. 11. 0.49								83. 59. 5.92		β Aquilae.
	46. 10. 58.16								28. 23. 23.19		Σ 2652.
	- 9. 23. 35.64				2. 1.87				102. 49. 9.49		3 Capricorni.
	64. 59. 59.34	30,154	68.1	70.1	51.97	5.73			75. 29. 1.37		Mercury
	37. 41. 15.72				52.94	5.79			80. 44. 10.65		⊙.
	43. 12. 7.89								80. 44. 11.19		⊙.

Coincidence of Micrometer Wire with fixed Wire = 10', 112 at the middle wire. From Aug. 28 = 10', 997, 10', 104, 10', 107, 10', 111, 10', 117 at the five wires.

One Micrometer Revolution = 20", 868.

Correction for Refr. = - 7".2 From Aug. 28 = - 7".4.

Adopted Zenith Point = 112'. 46". 97.76.

Assumed Co-latitude = 37°. 47' - 6".28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Aug. 29	Polaris SP. R. M.	332. 5	0. 33,8	29,8	28,8	30,2	24,8	28,8	11,360	- 26,14			332. 5. 3,11	G.
	Polaris SP.	73. 25	2. 19,8	18,0	16,2	16,7	12,8	14,8					73. 27. 15,83	G.
	$\beta$ Ophiuchi.	160. 15	4. 40,8	38,6	39,8	36,0	38,3	37,8					160. 19. 37,42	G.
	* $\mathcal{A}$ . 17 <sup>h</sup> . 41 <sup>m</sup> . 15 <sup>s</sup> .	162. 55	1. 61,2	60,3	61,3	58,8	57,0	57,6					162. 56. 58,88	G.
	$\theta$ Herculis.	127. 40	2. 9,6	7,0	8,0	5,8	5,0	3,8					127. 42. 6,02	G.
	* $\mathcal{A}$ . 18 <sup>h</sup> . 8 <sup>m</sup> . 57 <sup>s</sup> .	164. 0	0. 28,3	28,2	28,4	25,3	24,3	25,3					164. 0. 26,53	G.
Aug. 31	Mercury, center.	150. 25	1. 56,8	56,0	57,5	53,9	50,9	50,9					150. 26. 53,87	G.
Sept. 1	$\odot$ N.L. M.	156. 30	1. 17,3	18,0	16,8	15,1	11,1	12,9	9,573	+ 11,14			156. 31. 26,04	G.
	$\odot$ S.L.	157. 0	3. 13,9	12,7	12,9	11,3	9,8	10,4					157. 3. 11,05	G.
	$\alpha$ Ursæ Maj. R. M.	303. 10	0. 32,6	30,0	29,8	28,3	20,8	26,4	11,968	- 38,83			303. 9. 49,04	G.
	$\alpha$ Ursæ Majoris.	102. 20	2. 38,8	37,1	34,8	35,3	31,0	33,2					102. 22. 34,40	G.
	(a) Venus S.L.	159. 35	0. 54,4	56,4	53,8	53,2	47,6	51,4					159. 35. 52,58	G.
	Polaris SP. R. M.	332. 0	4. 19,6	17,1	17,5	14,2	10,7	14,4	7,710	+ 50,03			332. 5. 4,56	G.
	Polaris SP.	73. 25	2. 19,8	19,1	16,8	17,2	13,4	14,3					73. 27. 16,20	G.
	Arcturus R. M.	260. 35	0. 27,8	27,8	23,7	26,3	20,9	24,0	11,779	- 34,89			260. 34. 50,09	G.
	Arcturus.	144. 55	2. 30,2	28,8	28,9	26,9	24,2	25,4					144. 57. 26,80	G.
	(b) $\gamma$ N.L. M.	186. 30	0. 7,9	9,8	5,9	8,5	3,3	4,9	9,357	+ 15,44	-2	+ 6,04	186. 30. 28,16	G.
	$\gamma$ N.L. M.	...	...	...	...	...	...	...	9,304	+ 16,69	-1	+ 3,02	186. 30. 26,39	G.
	$\gamma$ N.L. M.	...	...	...	...	...	...	...	9,160	+ 19,76			186. 30. 26,44	G.
	$\gamma$ N.L. M.	...	...	...	...	...	...	...	8,988	+ 23,44	+1	- 3,02	186. 30. 27,10	G.
	$\gamma$ N.L. M.	...	...	...	...	...	...	...	8,865	+ 26,12	+2	- 6,04	186. 30. 26,76	G.
	(c) Jupiter N.L.	180. 0	0. 15,0	16,2	14,0	15,5	9,8	12,3					180. 0. 13,75	G.
	$\beta$ Ursæ Min. R. M.	315. 20	1. 18,0	14,8	14,5	14,7	8,0	13,9	9,270	+ 17,47			315. 21. 31,15	G.
	$\beta$ Ursæ Minoris.	90. 10	0. 53,8	50,4	53,0	49,8	46,0	47,8					90. 10. 49,93	G.
	$\alpha$ Coron. Bor. R. M.	267. 45	3. 25,9	23,0	22,1	21,4	15,3	22,3	7,920	+ 45,65			267. 49. 6,48	G.
	$\alpha$ Coronæ Borealis.	137. 40	3. 13,4	13,8	12,3	11,3	8,4	9,7					137. 43. 10,70	G.
	$\alpha$ Serpentis R. M.	247. 25	4. 20,4	17,8	16,2	16,1	12,2	17,0	7,653	+ 51,21			247. 30. 6,78	G.
	$\alpha$ Serpentis.	158. 0	2. 12,6	12,9	12,5	10,0	8,5	9,2					158. 2. 10,42	G.
	$\epsilon$ Scorpil.	187. 5	0. 39,9	41,4	37,6	40,8	35,0	37,8					187. 5. 38,60	G.
	41 Ophiuchi.	165. 10	3. 29,0	29,7	28,0	26,4	25,1	26,5					165. 13. 26,60	G.
	* $\mathcal{A}$ . 18 <sup>h</sup> . 30 <sup>m</sup> . 9 <sup>s</sup> .	113. 20	2. 17,2	16,1	14,5	13,3	7,1	11,8			+2	+ 0,76	113. 22. 13,54	G.
	* $\mathcal{A}$ . 18 <sup>h</sup> . 30 <sup>m</sup> . 48 <sup>s</sup> . m.	...	...	...	...	...	...	...	18,266	- 2. 50,05	+2	+ 0,76	113. 19. 23,49	G.
	5 Aquilæ.	166. 5	0. 13,0	14,2	14,0	12,3	6,0	9,8					166. 5. 11,50	G.
	(d) $\epsilon$ Lyre M.	125. 30	1. 42,0	39,8	40,5	39,8	36,5	37,0	20,012	- 3. 26,69			125. 28. 12,18	G.
	(d) 5 Lyre.	...	...	...	...	...	...	...					125. 31. 38,87	G.
	* $\mathcal{A}$ . 18 <sup>h</sup> . 48 <sup>m</sup> . 4 <sup>s</sup> .	166. 55	2. 43,6	45,1	43,3	41,2	40,4	40,4					166. 57. 41,67	G.
	(e) $f$ Aquilæ.	170. 35	4. 61,8	62,2	61,8	60,9	56,1	57,9					170. 40. 0,12	G.
	Piazzî XIX. 85.	168. 55	3. 33,2	31,9	31,6	30,2	29,8	29,2					168. 58. 30,12	G.
	Mercury, center.	150. 30	3. 27,3	30,8	26,9	27,0	24,8	24,0					150. 33. 25,97	G.
Sept. 2	(f) $\odot$ S.L. M.	157. 25	1. 20,6	21,9	19,0	19,4	15,9	16,5	13,633	- 1. 13,58			157. 25. 4,99	G.
	$\odot$ N.L.	156. 50	3. 23,0	25,0	20,9	20,4	21,0	19,4					156. 53. 20,80	G.
Sept. 3	$\odot$ N.L. M.	157. 15	0. 37,1	35,1	36,2	34,3	31,1	34,0	10,873	- 15,78			157. 15. 18,75	G.
	$\odot$ S.L.	157. 45	2. 8,7	6,5	8,0	5,8	0,8	3,8					157. 47. 5,25	G.
	(g) Venus S.L.	160. 35	0. 55,1	54,4	55,2	52,9	48,8	51,8			+2	- 0,65	160. 35. 52,23	G.
	(h) Polaris SP. R. M.	332. 5	1. 30,9	28,1	29,2	28,9	24,3	27,1	14,283	- 1. 26,94		+ 0,91	332. 5. 1,80	G.
	(h) Polaris SP.	73. 25	2. 22,9	19,0	18,7	17,2	12,9	16,1				- 0,79	73. 27. 16,63	G.
	(h) Polaris SP. R. M.	332. 5	1. 14,0	11,9	12,0	11,9	6,1	9,7	13,335	- 1. 7,15		+ 0,18	332. 5. 3,76	G.
	(h) Polaris SP.	73. 25	2. 23,1	19,5	19,5	19,2	14,8	18,0				- 0,25	73. 27. 18,38	G.
	$\epsilon$ Scorpil.	187. 5	0. 38,8	36,4	37,1	36,1	32,6	35,0					187. 5. 35,90	G.
	(i) $\gamma$ N.L. M.	192. 25	1. 65,4	62,0	63,6	62,0	57,3	60,4	11,410	- 26,98			192. 26. 34,47	G.
	$\gamma$ N.L. M.	...	...	...	...	...	...	...	11,400	- 26,69	+1	- 1,33	192. 26. 33,43	G.
	$\gamma$ N.L. M.	...	...	...	...	...	...	...	11,343	- 25,38	+2	- 2,66	192. 26. 33,41	G.
	$\epsilon$ Ursæ Min. R. M.	322. 50	2. 14,7	12,2	12,3	12,2	6,4	10,3	15,620	- 1. 54,83			322. 50. 16,15	G.
	$\epsilon$ Ursæ Minoris.	82. 40	1. 70,2	65,5	67,8	67,2	58,0	64,8					82. 42. 5,23	G.
	$\beta$ Ophiuchi.	160. 15	4. 41,8	35,9	40,8	34,6	33,8	36,2					160. 19. 36,42	G.
	* $\mathcal{A}$ . 17 <sup>h</sup> . 41 <sup>m</sup> . 15 <sup>s</sup> .	162. 55	1. 62,8	57,9	62,9	58,2	53,8	57,1					162. 56. 58,47	G.
	* $\mathcal{A}$ . 18 <sup>h</sup> . 8 <sup>m</sup> . 57 <sup>s</sup> .	164. 0	0. 29,8	25,7	28,5	25,0	20,0	24,4					164. 0. 25,50	G.

Sept. 3, 2<sup>h</sup>. Molyneux fast on Hardy, 15<sup>s</sup>.Coincidence at the middle wire and Runs taken Sept. 7, 2<sup>h</sup>. (Temp. 64°.)

- (a) Great motion, and clouds passing. (b) Very faint and uncertain. (c) In too much daylight to be satisfactory.  
 (d) The South preceding of  $\epsilon$  Lyre and the North preceding of 5 Lyre were bisected: these were considered the larger components. (e) No correction for Runs. (f) Cloudy. (g) Correction for change of N.P.D. = - 0<sup>h</sup>. 69.  
 (h) Times of observation by Molyneux, 12. 58. 22 and 12. 58. 40; 13. 4. 20 and 13. 4. 40. (i) Faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
9.47	-39.18.53.35	50.134	70.4	71.4					-1.32.31.13		Polaris SP. R.
	-39.18.53.93				46.06				-1.32.31.71	+6.51	Polaris SP.
	47.33.27.66	50.100	67.3	65.0	1.2.17				85.21.38.11	-1.03	$\beta$ Ophiuchi.
	50.10.49.12				1.8.17				87.59.5.57	-1.41	* $\Delta$ . 17 <sup>h</sup> . 41 <sup>m</sup> . 15 <sup>s</sup> .
	14.55.56.26				13.19				52.43.19.73	+7.70	$\delta$ Herculis.
	51.14.16.77			64.0	1.10.92				89.2.35.97	+0.32	* $\Delta$ . 18 <sup>h</sup> . 8 <sup>m</sup> . 57 <sup>s</sup> .
11.72	37.40.44.11	29.970	73.4	69.4	43.38	5.59			75.28.30.18		Mercury.
	43.45.16.28	29.930	69.8	71.5	53.46	5.85		15.52.80	81.49.4.97		$\odot$ .
	44.17.1.29				54.46	5.91			81.49.5.32		$\odot$ .
	-10.23.39.28				10.25				27.23.18.75	-9.27	$\alpha$ Ursæ Maj. R.
	-10.23.35.36								27.23.22.67		$\alpha$ Ursæ Majoris.
	46.49.42.82	29.908	68.9	72.0	59.40	3.69	10.590	5.04	84.37.41.77		Venus.
10.58	-39.18.54.80	29.870	69.3	72.6	45.55				-1.32.32.07	+7.51	Polaris SP. R.
	-39.18.53.56								-1.32.30.83		Polaris SP.
	32.11.19.67	29.850	68.7	70.7	35.13				69.59.3.08	-8.03	Arcturus R.
	32.11.17.04								69.59.0.45		Arcturus.
	73.44.18.40	29.846	68.1	71.1					110.56.57.10		$\delta$ .
	73.44.16.63								110.56.55.33		$\delta$ .
8.45	73.44.16.68				3.8.52	52.36.59		14.58.49	110.56.55.38		$\delta$ .
	73.44.17.34								110.56.56.04		$\delta$ .
	73.44.17.00								110.56.55.70		$\delta$ .
	67.14.3.99				2.12.00	1.37	8.620	15.52	105.3.38.42		Jupiter.
	-22.35.21.39				23.21				15.11.23.68	+0.20	$\beta$ Ursæ Min. R.
	-22.35.19.83								15.11.25.24		$\beta$ Ursæ Minoris.
10.54	24.57.3.28				25.95				62.44.37.51	-2.09	$\alpha$ Cor. Bor. R.
	24.57.0.94								62.44.35.17		$\alpha$ Corone Bor.
	45.16.2.98				56.24				83.4.7.50	-7.08	$\alpha$ Serpentis R.
	45.16.0.66								83.4.5.18		$\alpha$ Serpentis.
	74.19.28.84				3.15.74				112.9.52.86	-16.17	$\delta$ Scorpii.
	52.27.16.84	29.820	68.0	69.4	1.12.61				90.15.37.73	-4.31	$\delta$ Ophiuchi.
8.59	0.36.3.78	29.800	67.4	66.9	0.59				38.23.12.65	+11.84	* $\Delta$ . 18 <sup>h</sup> . 30 <sup>m</sup> . 9 <sup>s</sup> .
	0.35.13.73				0.59				38.20.22.60	+11.87	* $\Delta$ . 18 <sup>h</sup> . 30 <sup>m</sup> . 48 <sup>s</sup> .
	53.19.1.74				1.15.23				91.7.25.25	+2.16	$\delta$ Aquilæ.
	12.42.2.42				12.66				50.29.23.36	+11.01	$\epsilon$ Lyrae.
	12.45.29.11				12.72				50.32.50.11	+11.01	$\delta$ Lyrae.
	54.11.31.91				1.17.66				91.59.57.85	+2.75	* $\Delta$ . 18 <sup>h</sup> . 48 <sup>m</sup> . 4 <sup>s</sup> .
8.60	57.53.50.56			66.0	1.29.40				95.42.28.04	+3.77	$\gamma$ Aquilæ.
	56.12.20.56				1.23.83				94.0.52.47	+4.43	Piazzi XIX. 85.
	57.47.16.21	29.640	72.8	72.8	42.78	5.44			75.35.1.83		Mercury.
	44.38.55.23	29.624	73.3	74.4	54.28	5.05		15.53.10	82.10.58.74		$\odot$ .
	44.7.11.04				53.29	5.89			82.10.59.82		$\odot$ .
	44.29.8.27	29.590	62.0	61.0	55.36	5.93		15.53.30	82.32.59.28		$\odot$ .
9.22	45.0.54.77				56.39	5.99			82.33.0.15		$\odot$ .
	47.49.41.75	29.596	62.0	61.7	1.2.13	3.76	10.668	5.64	85.37.42.76		Venus.
	-39.18.51.32	29.620	63.0	62.4	46.09				-1.32.29.13	+8.16	Polaris SP. R.
	-39.18.53.85								-1.32.31.66		Polaris SP.
	-39.18.53.28				46.09				-1.32.31.09	+8.16	Polaris SP. R.
	-39.18.52.10								-1.32.29.91		Polaris SP.
11.07	74.19.25.42	29.654	61.8	61.4	3.18.29				112.9.51.99	-16.08	$\delta$ Scorpii.
	79.40.28.99	29.660	61.6	60.2					116.54.3.32		$\delta$ .
	79.40.22.04				3.0.50	53.17.17		14.47.72	116.54.2.28		$\delta$ .
	79.40.22.93								116.54.2.26		$\delta$ .
	-30.4.5.07	29.672	60.7	60.0	32.81				7.42.29.80	+7.31	$\epsilon$ Ursæ Min. R.
	-30.4.5.25								7.42.30.22		$\epsilon$ Ursæ Minoris.
10.59	47.33.25.94	29.678	60.0	56.8	1.2.32				85.21.36.54	-0.82	$\beta$ Ophiuchi.
	50.10.47.69				1.8.33				87.59.4.60	-1.20	* $\Delta$ . 17 <sup>h</sup> . 41 <sup>m</sup> . 15 <sup>s</sup> .
	51.14.15.62	29.700	58.6	55.7	1.11.16				89.2.34.46	+0.55	* $\Delta$ . 18 <sup>h</sup> . 8 <sup>m</sup> . 67 <sup>s</sup> .

Coincidence of Micrometer Wire with fixed Wire = 10', 097, 10', 104, 10', 107, 10', 111, 10', 117 at the five wires. From Sept. 3 = 10', 107, 10', 114, 10', 117, 10', 121, 10', 127

One Micrometer Revolution = 20', 868.

Correction for Run = -7", 4 From Sept. 3 = -5", 0.

Adopted Zenith Point = 112° 46' 0". 76. From Sept. 3 = 112° 46' 10", 48

Assumed Co-latitude = 37° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			° ' "	° ' "	° ' "	° ' "	° ' "	° ' "					° ' "	
Sept. 3	* R. 18 <sup>h</sup> . 20 <sup>m</sup> . 21 <sup>s</sup> .	146.45	3.13,5	7,4	13,7	6,8	5,7	6,8					146.48.8,47	G.
	* R. 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> .	145.10	1.51,1	47,0	50,7	45,4	41,6	43,9					145.11.46,32	G.
	(a) * R. 18 <sup>h</sup> . 29 <sup>m</sup> . 23 <sup>s</sup> . M.	165.25	3.24,2	20,0	23,6	18,0	15,8	19,0	22,455	-4.17,47			165.24.2,08	G.
	5 Aquila.....	166.5	0.12,3	9,0	12,9	8,9	2,0	6,2			+3	-0,04	166.5.8,48	G.
	* R. 18 <sup>h</sup> . 48 <sup>m</sup> . 4 <sup>s</sup> .	166.55	2.42,8	38,0	43,0	37,9	36,4	37,4					166.57.38,82	G.
	(b) 61 Cygni.....	127.0	0.34,7	27,8	32,2	29,8	22,1	27,6					127.0.28,95	G.
	* R. 21 <sup>h</sup> . 1 <sup>m</sup> . 9 <sup>s</sup> ...	135.20	3.50,8	42,1	49,0	43,9	38,2	42,8					135.23.43,85	G.
	(b) Σ 2776.....	175.55	2.31,0	24,1	30,1	25,6	19,9	25,1					175.57.25,57	G.
	* R. 21 <sup>h</sup> . 9 <sup>m</sup> . 0 <sup>s</sup> ...	151.45	4.45,8	38,2	46,1	38,0	37,3	39,6					151.49.40,05	G.
	β Aquarii R. M....	234.15	3.19,7	12,5	14,5	11,3	3,8	11,6	8,184	+40,34			234.18.52,04	G.
	β Aquarii.....	171.10	3.33,3	26,1	31,5	26,9	22,0	28,0					171.13.27,38	G.
	β Cephei R. M....	310.20	3.35,1	27,9	31,5	30,2	23,3	28,5	6,139	+1.23,01			310.24.51,84	G.
	β Cephei.....	95.5	2.40,0	31,0	34,0	32,2	22,2	31,6					95.7.31,42	G.
Sept. 4	(c) ☉ S.L. ....	158.5	4.17,0	14,0	17,1	12,4	9,2	13,0					158.9.13,08	G.
	☉ N.L. ....	157.35	2.33,8	29,8	32,0	30,5	25,0	29,3					157.37.29,65	G.
Sept. 5	(d) ☽ S.L. M. ....	193.40	1.50,5	48,2	49,8	48,0	42,0	46,9	10,742	-13,04			193.41.34,23	G.
	☽ S.L. M. ....	...	...	...	...	...	...	...	10,740	-12,92	+1	+0,81	193.41.35,16	G.
	☽ S.L. M. ....	...	...	...	...	...	...	...	10,766	-13,54	+2	+1,62	193.41.35,35	G.
	ε Ursæ Min. R. M.	327.5	2.27,2	24,9	25,2	25,0	20,1	24,4	7,361	+57,52			327.8.21,59	G.
	ε Ursæ Minoris....	78.20	3.63,8	59,3	62,0	60,7	56,0	59,2					78.23.59,50	G.
	α Lyrae R. M....	279.5	4.34,0	30,4	30,9	30,0	22,9	29,2	2,738	+2.33,99			279.12.2,81	G.
	α Lyrae.....	126.20	0.21,2	18,9	19,7	19,3	10,2	16,8					126.20.17,63	G.
	5 Aquila.....	166.5	0.11,8	10,0	12,8	10,2	2,3	6,8					166.5.8,95	G.
	ε Lyrae.....	125.25	3.17,9	14,1	16,8	15,1	9,3	11,8					125.28.13,63	G.
	5 Lyrae M. ....	...	...	...	...	...	...	...	0,238	+3.26,15			125.31.39,78	G.
	f Aquila.....	170.35	4.60,2	56,6	61,0	56,7	52,4	55,9					170.39.56,32	G.
	p Aquila.....	169.55	2.26,8	22,8	24,4	23,1	15,2	21,8					169.57.21,95	G.
	61 Cygni.....	127.0	0.32,0	26,9	30,6	28,9	21,3	27,0					127.0.27,70	G.
	(e) * R. 21 <sup>h</sup> . 2 <sup>m</sup> . 40 <sup>s</sup> ...	100.0	0.49,8	43,8	46,6	45,4	38,3	42,8					100.0.44,33	G.
	ε Equulei.....	155.35	1.11,7	8,3	10,8	8,3	3,6	6,9					155.36.8,08	G.
	* R. 21 <sup>h</sup> . 9 <sup>m</sup> . 0 <sup>s</sup> ...	151.45	4.44,0	38,8	43,4	38,8	35,8	39,4					151.49.39,27	G.
	α Cephei R. M....	302.25	2.19,9	17,3	17,8	17,6	7,5	14,4	7,919	+45,88			302.28.1,25	G.
	α Cephei.....	103.0	4.27,1	21,2	22,8	22,3	15,2	19,8					103.4.20,68	G.
	κ Capricorni.....	184.30	1.24,2	23,2	23,8	23,8	13,1	20,5					184.31.21,20	G.
	ζ Orionis.....	166.55	4.22,3	17,9	22,8	17,4	16,9	19,0					166.59.18,67	G.
Sept. 6	ζ Orionis.....	166.55	4.23,6	20,9	23,0	20,1	16,6	20,8					166.59.20,12	G.
Sept. 7	Mercury, center...	152.20	2.32,7	33,8	31,8	30,1	27,7	30,1					152.22.30,62	G.
Sept. 8	(f) ☉ S.L. M. ....	159.35	4.18,0	19,0	18,0	15,5	15,2	15,5	11,260	-23,85			159.38.52,30	G.
	☉ N.L. ....	159.5	2.6,6	8,8	7,6	7,3	3,7	3,8					159.7.5,95	G.
	(d) Venus S.L. ....	163.5	2.54,3	55,8	55,2	55,0	51,4	51,4					163.7.53,37	G.
	(g) Piazzì XX. 429. M.	115.5	4.20,8	18,8	19,0	16,9	12,3	16,9	13,570	-1.12,05			115.8.4,68	G.
	(h) ☽ S.L. M. ....	184.50	2.54,8	55,0	54,8	52,2	47,8	52,1	10,523	-8,69	-2	-6,86	184.52.36,75	G.
	☽ S.L. M. ....	...	...	...	...	...	...	...	10,704	-12,31	-1	-3,43	184.52.36,56	G.
	☽ S.L. M. ....	...	...	...	...	...	...	...	10,918	-16,71			184.52.35,59	G.
	☽ S.L. M. ....	...	...	...	...	...	...	...	11,094	-20,30	+1	+3,43	184.52.35,43	G.
	☽ S.L. M. ....	...	...	...	...	...	...	...	11,215	-22,71	+2	+6,86	184.52.36,45	G.
	(b) 61 Cygni.....	127.0	0.29,8	28,2	27,6	26,1	19,4	25,0					127.0.25,95	G.
	(e) * R. 21 <sup>h</sup> . 2 <sup>m</sup> . 40 <sup>s</sup> ...	100.0	0.47,6	44,4	45,4	44,0	38,4	42,1					100.0.43,53	G.
	(b) Σ 2776.....	175.55	2.27,2	25,8	26,4	23,8	20,9	23,2					175.57.24,15	G.
	κ Capricorni.....	182.25	1.56,0	54,1	56,4	52,7	47,3	52,2					182.26.52,80	G.
	β Cephei R. M....	310.20	3.26,4	25,2	23,4	23,7	16,9	21,9	5,794	+1.30,21			310.24.52,56	G.
	β Cephei.....	95.5	2.35,1	29,4	30,3	29,0	21,3	29,4					95.7.28,67	G.
	γ Capricorni.....	182.15	4.5,8	3,2	6,3	1,8	0,0	1,8					182.19.2,48	G.
	κ Capricorni.....	184.30	1.25,9	23,9	25,0	23,4	17,3	22,2					184.31.22,72	G.
Sept. 9	(i) Mercury, center...	153.20	2.54,2	52,8	53,6	51,1	49,8	50,8					153.22.51,58	G.

- (a) A smaller star follows of greater N.P.D. by 4'.  
 (b) The preceding star. The following of Σ 2776 is double.  
 (c) Without the dark glass: faint and uncertain. S.L. came on the fixed wire.  
 (d) Cloudy.

- (e) Very faint.  
 (f) Badly defined limbs.  
 (g) Faint from clouds.  
 (h) Clouds passing: much clouded at 4th and 5th wires.  
 (i) Very cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
9.71	34. 1. 57.99	29,700	58,6	55,7	58,64	6,03			71. 49. 44,91	+ 6,09	* R. 18 <sup>h</sup> . 20 <sup>m</sup> . 21 <sup>s</sup> .
	32. 25. 55,84				56,35				70. 13. 20,47	+ 6,79	* R. 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> .
	52. 37. 51,60				1. 14,80				90. 26. 14,68	+ 1,77	* R. 18 <sup>h</sup> . 29 <sup>m</sup> . 23 <sup>s</sup> .
	53. 18. 58,00				54,0				91. 7. 23,22	+ 2,26	5 Aquila.
	54. 11. 28,34				1. 19,44				91. 59. 56,06	+ 2,85	* R. 18 <sup>h</sup> . 48 <sup>m</sup> . 4 <sup>s</sup> .
	14. 14. 18,47	29,712	54,4	50,9	14,67				52. 1. 41,42	+ 19,76	61 Cygni.
	22. 37. 33,37				24,10				60. 25. 5,75	+ 17,32	* R. 21 <sup>h</sup> . 1 <sup>m</sup> . 9 <sup>s</sup> .
	63. 11. 15,09				1. 53,88				101. 0. 17,25	+ 13,32	Σ 2776.
	59. 3. 29,57				46,89				76. 51. 24,74	+ 16,52	* R. 21 <sup>h</sup> . 9 <sup>m</sup> . 0 <sup>s</sup> .
	58. 27. 18,44				53,8				96. 16. 0,76	+ 15,40	β Aquarii R.
11.63	58. 27. 16,90				1. 34,04				96. 15. 59,22		β Aquarii.
	- 17. 38. 41,36				18,42				20. 8. 8,50	+ 16,86	β Cephei R.
	- 17. 38. 39,06								20. 8. 10,80		β Cephei.
	45. 23. 2,60	29,708	60,3	60,0	57,16			15. 53,50	82. 55. 8,81		⊙.
	44. 51. 19,17				56,41				82. 55. 11,39		⊙.
10.55	80. 55. 23,75	30,120	59,5	57,8		53. 33,15		14. 48,72	117. 39. 55,57		δ.
	80. 55. 24,68				5. 45,41				117. 39. 56,50		δ.
	80. 55. 24,87								117. 39. 56,69		δ.
	- 34. 22. 11,11				39,38				3. 24. 17,79	+ 11,40	δ Ursæ Min. R.
	- 34. 22. 10,98								3. 24. 17,92		δ Ursæ Minoris.
10.22	13. 34. 7,67				13,91				51. 21. 29,86	+ 10,95	α Lyrae R.
	13. 34. 7,15								51. 21. 29,34		α Lyrae.
	53. 18. 58,47				1. 17,17				91. 7. 23,92	+ 2,36	5 Aquila.
	12. 42. 3,15				12,98				50. 29. 24,41	+ 11,55	α Lyrae.
	12. 45. 29,30				13,05				50. 32. 50,63	+ 11,55	5 Lyrae.
10.07	57. 53. 45,84	30,040	58,0	56,0	57,1				95. 42. 25,80	+ 3,88	γ Aquila.
	57. 11. 11,47				1. 29,21				94. 59. 48,96	+ 5,60	γ Aquila.
	14. 14. 17,22				14,68				52. 1. 40,18	+ 20,28	61 Cygni.
	- 12. 45. 26,15				13,10				25. 1. 29,03	+ 17,79	* R. 21 <sup>h</sup> . 2 <sup>m</sup> . 40 <sup>s</sup> .
	42. 49. 57,60				53,59				80. 37. 59,47	+ 16,18	δ Equulei.
	39. 3. 28,79	30,130	53,6	49,1	46,92				76. 51. 23,99	+ 16,81	* R. 21 <sup>h</sup> . 9 <sup>m</sup> . 0 <sup>s</sup> .
	- 9. 41. 50,77				9,88				28. 5. 7,63	+ 18,06	α Cephei R.
	- 9. 41. 49,80								28. 5. 8,60		α Cephei.
	71. 45. 10,72				2. 55,59				109. 35. 12,59	+ 14,58	α Capricorni.
	54. 13. 8,19				1. 21,48				92. 1. 37,95	+ 18,64	ζ Orionis.
10.62	54. 13. 9,64	30,026	60,0	56,0	1. 19,92	52. 48,19	10,660	5,67	92. 1. 37,84	+ 18,68	ζ Orionis.
	39. 36. 20,14	30,088	65,1	63,3	47,22				77. 24. 10,80		Mercury.
	46. 52. 41,82	30,080	64,3	65,2	1. 0,65				84. 24. 50,06		⊙.
	46. 20. 55,47				59,54				84. 24. 51,65		⊙.
	50. 21. 42,89	30,046	60,9	56,4	65,8				88. 9. 50,03		Venus.
	2. 21. 54,20				2,39				40. 9. 4,87	+ 18,93	Piazzi XX. 429.
	72. 6. 26,27								108. 48. 33,64		δ.
	72. 6. 26,08								108. 48. 33,45		δ.
	72. 6. 25,11				2. 57,08				108. 48. 32,48		δ.
	72. 6. 24,95								108. 48. 32,32		δ.
10.62	72. 6. 25,97	30,038	59,0	55,1	14,67				108. 48. 33,34		δ.
	14. 14. 15,47				13,09				52. 1. 38,42	+ 21,03	61 Cygni.
	- 12. 45. 26,95								25. 1. 28,24	+ 18,73	* R. 21 <sup>h</sup> . 2 <sup>m</sup> . 40 <sup>s</sup> .
	63. 11. 13,67				1. 54,15				101. 0. 16,10	+ 13,36	Σ 2776.
	60. 40. 42,32				2. 35,17				107. 30. 25,77	+ 12,77	α Capricorni.
	- 17. 38. 42,08	29,936	64,4	60,9	18,43				20. 8. 7,57	+ 18,59	β Cephei R.
	- 17. 38. 41,81								20. 8. 8,04		β Cephei.
	60. 32. 52,00				2. 34,10				107. 22. 34,38	+ 14,56	γ Capricorni.
	71. 45. 12,24				2. 53,90				109. 35. 14,42	+ 14,46	α Capricorni.
	40. 36. 41,10				48,92				78. 24. 33,56		Mercury.

Coincidence of Micrometer Wire with fixed Wire = 10', 107, 10', 113, 10', 117, 10', 121, 10', 127 at the five wires.

One Micrometer Revolution = 20", 868.

Correction for Run = 5", 0

Adopted Zenith Point = 11° 46' 10", 48.

Assumed Co-latitude = 37° 45' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Sept. 9	$\alpha$ Ursæ Maj. R. M.	303.10	0.28,0	26,5	26,0	25,8	19,4	24,2	12,012	-40,17			303.9.41,75	G.
	$\alpha$ Ursæ Majoris...	102.20	2.40,9	38,0	37,3	37,6	34,8	36,2					102.22.37,03	G.
Sept. 10	$\odot$ S.L. M.....	160.20	4.26,8	26,3	26,6	23,7	23,5	25,3	10,444	-6,83			160.24.17,80	G.
	$\odot$ N.L.....	159.50	2.31,2	30,8	30,7	28,6	24,8	29,3					159.52.28,82	G.
	(a) Venus S.L.....	164.5	4.14,1	14,8	15,1	13,2	12,9	12,9					164.9.13,13	G.
	(b) $\delta$ Scorpii.....	187.5	0.38,9	39,8	37,3	39,4	36,0	36,8					187.5.37,93	G.
	$\gamma$ Capricorni.....	182.15	4.9,0	7,1	8,7	4,4	3,3	5,1			+3	-0,42	182.19.5,16	G.
	(c) Mercury, center...	153.55	1.45,6	45,2	44,7	45,5	39,8	42,8			+4	-1,19	153.56.42,46	G.
	$\alpha$ Ursæ Maj. R. M.	303.10	0.32,9	30,8	29,9	29,8	21,8	28,2	12,240	-44,31			303.9.44,51	G.
	$\alpha$ Ursæ Majoris...	102.20	2.40,6	39,8	38,0	38,3	34,1	35,2					102.22.37,23	G.
Sept. 11	(d) $\odot$ N.L. M.....	160.15	0.35,4	35,0	35,1	34,3	28,8	33,8	10,925	-16,86			160.15.16,77	G.
	$\odot$ S.L.....	160.45	2.8,7	8,0	8,7	7,7	4,5	5,0					160.47.6,75	G.
	$\beta$ Cephei R. M....	310.20	3.28,7	25,1	25,4	24,4	17,8	22,8	5,809	+1.29,90			310.24.53,37	G.
	$\beta$ Cephei.....	95.5	2.33,8	29,0	30,1	28,7	19,8	28,1					95.7.27,83	G.
	$\gamma$ Capricorni.....	182.15	4.7,5	4,7	7,8	3,4	0,1	4,0					182.19.3,90	G.
	(e) $\epsilon$ Pegasi R. M....	249.40	2.24,4	21,1	21,0	18,9	12,4	19,1	7,518	+54,24			249.43.13,34	G.
	(f) $\epsilon$ Pegasi.....	155.45	4.10,8	9,3	12,0	8,7	5,7	7,9					155.49.8,38	G.
	(g) $\zeta$ Aquarii.....	165.45	2.38,0	36,4	39,6	36,2	30,9	35,1					165.47.35,60	G.
	$\alpha$ U. Maj. SP. R. M.	357.50	3.25,8	25,0	26,1	25,4	18,2	24,4	6,450	+1.16,52			357.54.40,10	G.
	$\alpha$ Ursæ Majoris SP.	47.35	2.46,4	45,1	43,2	43,6	36,2	42,9					47.37.42,45	G.
	$\phi$ Aquarii.....	171.50	1.41,0	40,2	43,2	40,0	35,8	38,2					171.51.39,45	G.
	$\psi^1$ Aquarii.....	174.50	4.22,2	19,0	22,8	18,9	13,8	19,8					174.54.18,70	G.
	96 Aquarii.....	170.55	1.58,4	56,7	59,8	56,1	49,8	54,4					170.56.55,55	G.
	$\lambda$ Draco SP. R. M.	350.15	3.21,2	21,0	22,0	21,2	16,8	20,0	7,600	+52,53			350.19.12,35	G.
	$\lambda$ Draconis SP....	55.10	3.13,1	12,2	10,8	10,8	2,4	9,8					55.13.9,32	G.
	(h) $\delta$ S.L. M.....	167.20	4.18,0	16,6	18,7	16,0	11,4	14,8	4,139	+2.4,75			167.26.19,97	G.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	4,380	+1.59,80	+1	+4,48	167.26.19,50	G.
	$\delta$ N.L.....	166.50	4.31,8	31,6	32,9	28,3	27,9	29,4			+2	+8,96	166.54.38,53	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	10,385	-5,25	+3	+13,44	166.54.37,76	G.
	(i) $\infty$ Piscium.....	158.55	3.59,0	57,0	61,0	57,1	49,3	56,3					158.58.55,97	G.
	Mercury, center ..	154.30	2.46,1	45,1	46,8	44,5	41,1	43,8					154.32.44,12	G.
Sept. 12	(k) $\odot$ S.L. M.....	161.10	0.29,8	30,1	29,0	29,0	24,0	26,8	11,441	-27,63			161.10.0,42	G.
	$\odot$ N.L.....	160.35	3.13,4	12,9	13,3	10,1	8,6	9,2					160.38.10,72	G.
	Venus S.L.....	165.10	0.45,2	46,9	47,1	44,9	40,6	43,2					165.10.44,53	G.
	Polaris SP. R. M....	332.5	0.39,9	38,2	38,8	39,9	32,2	37,2	11,922	-37,66			332.4.59,94	G.
	Polaris SP.....	73.25	2.25,0	23,2	23,5	22,2	17,4	20,4					73.27.21,55	G.
	Arcturus R. M....	260.35	0.28,9	28,0	27,0	28,3	22,8	25,4	11,804	-35,21			260.34.51,46	G.
	Arcturus.....	144.55	2.31,2	31,0	31,0	29,9	26,9	27,7					144.57.29,20	G.
	* Ar. 18 <sup>h</sup> . 29 <sup>m</sup> . 23 <sup>s</sup> .	165.20	4.3,5	2,8	5,2	1,7	1,4	0,7					165.24.1,88	G.
	(l) $\epsilon$ Lyra.....	125.25	3.15,8	13,9	16,0	14,3	8,0	11,0			+2	+0,49	125.28.13,12	G.
	(l) 5 Lyrae M.....	...	...	...	...	...	...	...	0,274	+3.25,60	+2	+0,49	125.31.38,72	G.
	$\alpha^1$ Capricorni R. M.	227.30	2.26,8	25,8	24,5	25,0	19,5	23,5	0,775	+3.14,74	-2	+0,14	227.35.38,66	G.
	$\alpha^1$ Capricorni.....	177.55	1.41,4	39,7	41,0	40,4	35,8	38,8			+2	-0,14	177.56.39,11	G.
	$\alpha^2$ Capricorni R. M.	227.30	2.26,8	25,8	24,5	25,0	19,5	23,5	7,198	+1.0,71	-2	+0,14	227.33.24,63	G.
	$\alpha^2$ Capricorni M....	177.55	1.41,4	39,7	41,0	40,4	35,8	38,8	3,578	+2.16,66	+2	-0,14	177.58.55,77	G.
	Piazzi XX. 429...	115.5	3.7,5	3,8	7,3	3,8	0,0	2,8					115.8.3,70	G.
	$n$ Piscium.....	168.35	1.12,4	12,3	14,4	13,2	6,3	9,6					168.36.11,17	G.
	$\delta$ App. Sculp.....	193.50	3.31,2	29,4	31,8	29,8	27,8	29,4					193.53.29,32	G.
	$p$ Piscium M.....	169.20	3.34,4	34,0	36,7	33,8	32,6	32,8	9,650	+9,75			169.23.43,22	G.
	$\omega$ Piscium.....	158.55	3.58,4	57,9	60,8	58,6	55,7	59,4					158.58.57,80	G.
	$q$ Piscium.....	168.50	2.15,2	13,4	16,9	14,8	7,2	11,6					168.52.12,82	G.
	$\Sigma$ 2.....	86.5	4.48,8	43,1	49,3	44,1	39,8	42,4			+1	+0,76	86.9.44,56	G.
	(m) $d$ Piscium M....	157.40	2.21,4	16,1	22,1	18,8	14,0	17,6	18,016	-2.44,84			157.39.33,11	G.
	(n) $\delta$ N.L. M.....	160.15	2.28,9	26,3	29,6	25,2	22,8	25,3	10,491	-8,01	-2	-9,02	160.17.8,92	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	10,736	-12,98	-1	-4,51	160.17.8,46	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	10,944	-17,26			160.17.8,69	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	11,147	-21,42	+1	+4,51	160.17.9,04	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	11,403	-26,63	+2	+9,02	160.17.8,34	G.

(a) Hazy. (b) Faint and unsteady. (c) Correction for change of N.P.D. =  $-1''$ .65. (d) Too cloudy for the dark glass. (e) Disturbed mercury. (f) During the reading of the microscopes, the lamp fell from the lamp-stand of microscope C and struck the limb of the Circle, but not violently. (g) Cloudy. The north star was bisected by the micrometer wire. Micrometer reading =  $10''.250$ ; difference of N.P.D. =  $2''$ .78. (h) Very hazy. Correction applied for defect of illumination of S.L. =  $+0''$ .60. (i) The readings of microscope E appear to be more discordant than those of the other microscopes. The eye-piece of this microscope does not admit of being pushed in far enough to suit the eye-sight of the observer without the use of a concave lens. (k) Cloudy but steady. (l) Bisected as on Sept. 1. (m) Microscopes read before the observation to allow time for the Moon. (n) Very unsteady.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
10,89	- 10. 23. 34,27	29,936	64,4	63,4	10,42				27. 23. 23,59	- 12,09	$\alpha$ Ursæ Maj. R.
	- 10. 23. 33,45								27. 23. 24,41		$\alpha$ Ursæ Majoris.
	47. 38. 7,32	29,930	65,0	63,6	1. 2,16	6,27		15. 55,10	85. 10. 16,59		$\odot$ .
	47. 6. 18,34				1. 1,03	6,22			85. 10. 16,53		$\odot$ .
	51. 23. 2,65		63,6	65,0	1. 10,75	4,01	10,576	4,80	89. 11. 12,89		Venus.
10,87	74. 19. 27,45	29,924	64,8	61,6	3. 18,83				112. 9. 54,56	- 15,76	$\delta$ Scorpii.
	69. 32. 54,68		57,4	55,7	2. 33,33				107. 22. 36,29	+ 14,49	$\gamma$ Capricorni.
	41. 10. 31,98	29,876	63,0	61,7	49,72	4,70			78. 58. 25,28		Mercury.
	- 10. 23. 34,03								27. 23. 23,82		$\alpha$ Ursæ Maj. R.
	- 10. 23. 33,25				10,43				27. 23. 24,60	- 12,42	$\alpha$ Ursæ Majoris.
10,60	47. 29. 6,29	29,866	62,4	62,6	1. 1,83	6,26		15. 55,30	85. 33. 5,44		$\odot$ .
	48. 0. 56,27				1. 2,99	6,31			85. 33. 5,93		$\odot$ .
	- 17. 38. 42,89	29,892	53,4	51,6	18,48				20. 8. 6,91	+ 19,58	$\beta$ Cephei R.
	- 17. 38. 42,65								20. 8. 7,15		$\beta$ Cephei.
	69. 32. 53,42				2. 34,46				107. 22. 36,16	+ 14,46	$\gamma$ Capricorni.
10,86	43. 2. 57,14				54,21				80. 50. 59,63	+ 18,74	$\epsilon$ Pegasi R.
	43. 2. 57,90								80. 51. 0,39		$\epsilon$ Pegasi.
	53. 1. 25,12			50,8	1. 17,13				90. 49. 50,53	+ 20,68	$\zeta$ Aquarii.
	- 65. 8. 29,62			51,5	2. 4,72				- 27. 23. 26,06	- 12,59	$\alpha$ U. Maj. SP. R.
	- 65. 8. 28,03								- 27. 23. 24,47		$\alpha$ Ursæ Maj. SP.
11,28	59. 5. 28,97				1. 36,74				96. 54. 13,99	+ 23,32	$\phi$ Aquarii.
	62. 8. 8,22				1. 49,44				99. 57. 5,94	+ 23,31	$\psi^1$ Aquarii.
	58. 10. 45,07				1. 33,35				95. 59. 26,70	+ 23,65	$\eta$ Aquarii.
	- 57. 33. 1,87				1. 31,12				- 19. 47. 24,71	- 12,99	$\lambda$ Draconis SP. R.
	- 57. 33. 1,16								- 19. 47. 24,00		$\lambda$ Draconis SP.
10,84	54. 40. 9,49				1. 21,78	46. 45,86		15. 41,10	91. 26. 13,19		$\delta$ .
	54. 40. 9,02								91. 26. 12,72		$\delta$ .
	54. 8. 28,05				1. 20,21	46. 27,10			91. 26. 10,54		$\delta$ .
	54. 8. 27,28								91. 26. 9,77		$\delta$ .
	46. 12. 45,49			51,0	1. 0,60				84. 0. 54,37	+ 25,17	$\omega$ Piscium.
10,75	41. 46. 33,64		61,3	58,6	51,12	4,68			79. 34. 28,36		Mercury.
	48. 23. 49,94	29,882	59,8	59,8	1. 4,23	6,35		15. 55,60	85. 56. 0,50		$\odot$ .
	47. 52. 0,24				1. 3,05	6,30			85. 56. 0,87		$\odot$ .
	52. 24. 34,05			60,8	1. 13,90	4,08	10,618	5,19	90. 12. 46,98		Venus.
	- 39. 18. 49,46			61,2	46,61				- 1. 32. 27,79	+ 11,31	Polaris SP. R.
10,33	- 39. 18. 48,93								- 1. 32. 27,26		Polaris SP.
	32. 11. 19,02	29,876	60,4	61,5	35,81				69. 59. 3,11	- 9,00	Arcturus R.
	32. 11. 18,72								69. 59. 2,81		Arcturus.
	52. 37. 51,40		57,6	55,5	1. 15,27				90. 26. 14,95	+ 2,06	$\star$ Al. 18 <sup>h</sup> . 29 <sup>m</sup> . 23 <sup>s</sup>
	12. 42. 2,64				12,98				50. 29. 23,90	+ 12,31	$\epsilon$ Lyre.
8,89	12. 45. 28,24				13,04				50. 32. 49,56	+ 12,31	$\delta$ Lyre.
	65. 10. 31,82			55,6	2. 4,31				102. 59. 44,41	+ 7,30	$\alpha^1$ Capricorni R.
	65. 10. 29,63								102. 59. 41,22		$\alpha^1$ Capricorni.
	65. 12. 45,85				2. 4,52				103. 1. 58,65	+ 7,41	$\alpha^2$ Capricorni R.
	65. 12. 45,29								103. 1. 58,09		$\alpha^2$ Capricorni.
10,20	2. 21. 55,22			51,0	2,40				40. 9. 3,90	+ 19,96	Piazzi XX. 429.
	55. 50. 0,69	29,850	50,5	48,7	1. 25,76				93. 38. 34,73	+ 25,22	$\pi$ Piscium.
	81. 7. 18,84				5. 57,53				119. 0. 24,65	+ 25,04	$\delta$ App. Sculp.
	56. 37. 32,74				1. 28,35				94. 26. 9,37	+ 25,77	$\rho$ Piscium.
	46. 12. 17,72				1. 0,81				84. 0. 56,41	+ 25,28	$\omega$ Piscium.
8,89	56. 6. 2,34				1. 26,62				93. 54. 37,24	+ 25,87	$\eta$ Piscium.
	- 26. 36. 25,92				29,23				11. 10. 13,13	+ 16,09	$\Sigma$ 2.
	44. 54. 22,63	29,844	51,4	49,2	57,99				82. 41. 28,90	+ 25,74	$d$ Piscium.
	47. 30. 58,44								84. 52. 21,01		$\gamma$ .
	47. 30. 57,98								84. 52. 20,55		$\gamma$ .
10,20	47. 30. 58,21				1. 3,56	42. 39,64		15. 50,37	84. 52. 20,78		$\gamma$ .
	47. 30. 58,56								84. 52. 21,13		$\gamma$ .
	47. 30. 57,86								84. 52. 20,43		$\gamma$ .

Coincidence of Micrometer Wire with fixed Wire - 107,107, 107,114, 107,117, 107,121, 107,127 at the five wires.

One Micrometer Revolution - 20",868.

Correction for Runs -- 5",0.

Adopted Zenith Point - 112°. 46'. 10",48.

Assumed Co-latitude - 37°. 47'. 8",28.



Month and Day.	NAME OF STAR or PLANET.	Pointer. " "	Microscopes.						Microm. Reading. "	Correction to Fixed Wire. " "	Interval of Obs. from Middle Wire. "	Correction to Middle Wire. "	Concluded reading of Circle. " "	Observer.
			A	B	C	D	E	F						
Sept. 12	10 Ceti.....	165.50	3.32,2	27,6	33,0	28,7	27,0	28,5	10,856	- 15,43			165.53.28,92	G.
	α Cassiopeie R. M.	296.10	3.25,2	23,2	24,0	22,3	15,2	21,9					296.13.5,97	G.
	α Cassiopeie.....	109.15	4.19,9	15,0	19,8	15,4	12,4	13,9					109.19.15,35	G.
	η Cassiopeie.....	108.0	0.58,2	55,0	60,0	56,2	49,3	52,4					108.0.55,03	G.
	(a) δ Piscium.....	158.10	4.51,2	47,8	53,9	49,9	46,0	47,8			+3	+ 0,14	158.14.49,61	G.
	36 Andromedæ...	142.10	2.50,1	26,1	31,8	27,0	24,3	26,6					142.12.27,25	G.
	ε Piscium.....	157.55	0.61,3	57,2	62,8	58,8	55,2	56,3					157.55.58,45	G.
Sept. 13	δ Piscium.....	158.10	4.49,2	45,9	52,8	47,6	45,2	47,6	11,600	- 30,95			158.14.47,25	G.
	36 Andromedæ...	142.10	2.28,8	24,7	30,3	25,7	22,4	25,2					142.12.25,78	G.
	ε Piscium.....	157.55	0.60,0	56,4	62,4	58,3	54,8	56,8					157.55.57,97	G.
	(b) Polaris R. M.....	329.0	0.43,0	40,2	41,8	43,8	37,3	40,0					329.0.9,95	G.
	Polaris.....	76.30	2.18,1	11,8	15,9	13,1	7,5	12,8					76.32.12,83	G.
	(c) N.L. M.....	153.45	2.22,1	18,0	23,2	18,6	15,2	18,4			-2	- 8,70	153.47.0,59	G.
	N.L. M.....	...	...	...	...	...	...	...					153.47.1,17	G.
	N.L. M.....	...	...	...	...	...	...	...					153.47.1,72	G.
	N.L. M.....	...	...	...	...	...	...	...					153.47.0,83	G.
	N.L. M.....	...	...	...	...	...	...	...					153.47.0,42	G.
	N.L. M.....	...	...	...	...	...	...	...					153.47.0,42	G.
	ξ Andromedæ M.....	120.15	3.27,8	24,7	27,1	25,8	19,0	24,3			+1	+ 4,35	120.17.17,46	G.
	Σ 115.....	107.40	0.26,5	22,8	25,8	24,2	18,5	22,2					107.40.23,50	G.
Sept. 15	* R. 18 <sup>h</sup> . 29 <sup>m</sup> . 23 <sup>s</sup> ..	165.20	4.6,8	2,4	7,8	2,5	1,2	3,0	6,360	+ 1.18,33	-2	- 0,40	165.24.3,38	G.
	ι Aquilæ.....	169.50	2.23,4	17,7	22,3	19,5	15,4	18,0					169.52.19,07	G.
	β Lyrae R. M.....	273.40	3.30,8	29,0	28,7	25,9	20,6	24,9					273.44.44,10	G.
	β Lyrae.....	131.45	2.43,8	41,8	42,8	39,2	34,4	38,0					131.47.39,63	G.
	β Lyrae (comes) n.m.	273.40	3.30,8	29,0	28,7	25,9	20,6	24,9			-2	- 0,40	273.44.2,86	G.
	β Lyrae (comes) M.....	131.45	2.43,8	41,8	42,8	39,2	34,4	38,0					131.47.17,99	G.
	ρ Aquilæ.....	169.55	2.26,1	23,8	26,1	23,1	18,4	22,6			+ 37,09	+ 38,36	169.57.23,02	G.
	Piazzi XX. 429...	115.5	2.68,2	65,5	69,6	64,2	58,0	63,2					115.8.4,35	G.
	61 Cygni M.....	127.0	2.26,9	25,5	27,6	24,8	17,2	23,6					127.0.26,16	G.
	* R. 21 <sup>h</sup> . 1 <sup>m</sup> . 9 <sup>s</sup> ..	135.20	3.46,2	43,0	45,5	41,6	37,9	41,3	13,836	- 1.17,46			135.23.42,23	G.
	δ Equulei M.....	155.35	2.28,4	25,2	28,2	23,9	21,4	25,1					155.36.7,57	G.
	Σ 2776 (1st star)...	175.55	2.29,6	28,1	30,3	26,8	21,1	26,9					175.57.26,80	G.
Sept. 16	Mercury, center ..	157.55	2.57,8	56,3	59,5	56,5	53,8	54,6					157.57.56,02	G.
Sept. 17	⊙ N.L. M.....	162.30	4.20,1	31,2	28,2	29,9	25,0	28,5	12,520	- 50,01			162.33.38,02	G.
	⊙ S.L.....	163.5	0.31,6	33,0	30,8	33,3	27,5	30,8					163.5.31,10	G.
	Venus S.L.....	167.40	4.42,0	42,5	42,3	42,3	40,0	39,8					167.44.40,80	G.
	(d) δ Ursæ Minoris R.	327.5	3.25,2	24,8	23,8	24,3	22,2	23,1					327.8.23,43	G.
	δ Ursæ Minoris...	78.20	3.61,2	58,8	61,4	58,8	55,8	57,1					78.23.58,30	G.
	α Lyrae R. M.....	279.10	2.18,8	18,4	17,8	17,4	10,6	15,7			- 12,41		279.12.3,72	G.
	α Lyrae.....	126.20	0.16,1	18,3	17,3	16,0	12,0	14,1					126.20.15,58	G.
	ι Aquilæ.....	169.50	2.18,8	17,6	19,0	17,8	14,2	16,2			+ 1.23,11		169.52.16,95	G.
	β Lyrae R. M.....	273.40	3.22,2	20,9	21,5	20,0	14,8	18,5					273.44.42,29	G.
	β Lyrae.....	131.45	2.39,4	41,2	38,7	37,1	33,5	35,0			+ 39,80		131.47.37,12	G.
	(e) γ Aquilæ R. M...	250.45	2.27,5	24,0	26,8	24,7	20,8	23,8					250.48.4,07	G.
	γ Aquilæ.....	154.40	4.18,5	14,8	19,4	15,0	15,2	16,2			+ 47,56		154.44.15,92	G.
	β Aquilæ R. M...	246.30	4.28,5	25,0	26,4	24,7	20,8	25,9					246.35.12,16	G.
	β Aquilæ.....	158.55	2.8,9	5,5	10,7	7,8	3,4	6,4			- 50,66		158.57.6,82	G.
	ο U. Maj. SP. R. M.	359.15	2.26,9	24,3	27,2	25,3	20,5	25,8					359.16.34,01	G.
	ο Ursæ Majoris SP.	46.15	0.47,8	44,7	46,5	46,2	42,4	47,0			- 16,09		46.15.45,67	G.
	(f) φ Aquarii.....	171.50	1.37,6	34,0	39,4	35,0	33,3	35,3					171.51.35,55	G.
	ψ <sup>1</sup> Aquarii.....	174.50	4.17,9	13,3	19,2	14,3	12,4	15,8			10,895		174.54.14,90	G.
	96 Aquarii.....	170.55	1.54,8	51,8	56,8	52,0	49,6	52,1					170.56.52,60	G.
	η Piscium M.....	168.35	1.27,8	23,3	28,0	25,1	24,1	26,0					168.36.9,43	G.
	δ App. Sculp.....	193.50	3.27,1	23,8	27,5	23,9	20,8	25,2					193.53.24,23	G.
	p Piscium.....	169.20	3.44,8	40,8	46,4	40,9	40,5	41,1					169.23.41,90	G.
	q Piscium.....	168.50	2.13,8	9,0	15,4	11,0	8,3	10,8					168.52.11,08	G.
	(g) ⊙ N.L. M.....	163.20	2.27,8	23,4	28,0	25,4	22,8	24,8			- 2.13,62		163.20.11,41	G.
	⊙ S.L.....	163.50	2.7,0	3,0	8,2	4,3	0,4	3,4					163.52.4,10	G.

Coincidence at the middle wire and Runs taken Sept. 23, 2<sup>h</sup>. (Temp. 54°.)

- (a) The preceding division bisected. (b) Indistinct.  
(c) Bad definition and great motion.  
(d) By accident on the fixed wire.  
(e) Faint on account of the trough of mercury not being set accurately.

- (f) The N.P.D. of this and the following stars by this day's observations are all less than by the observations of other days, owing, possibly, to a temporary variation of zenith point.  
(g) Without the dark glass: faint and uncertain.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
10.66	53. 7. 18.44	29,844	51.4	49.2	1. 17.53				90. 55. 44.25	+26.60	10 Ceti.
	- 3. 26. 55.49				3.51				31. 20. 9.28	+18.54	$\alpha$ Cassiopeiæ R.
	- 3. 26. 55.13								31. 20. 9.64		$\alpha$ Cassiopeiæ.
	- 4. 45. 15.45	29,828	51.2		4.85				33. 1. 47.98	+17.35	$\eta$ Cassiopeiæ.
	45. 28. 39.13				59.16				83. 16. 46.57	+26.27	$\delta$ Piscium.
	29. 26. 16.77				32.86				67. 13. 57.91	+23.86	36 Andromedæ.
	45. 9. 47.97				58.52				82. 57. 54.77	+26.38	$\epsilon$ Piscium.
11.39	45. 28. 36.77	29,550	51.4	47.8	58.78				83. 16. 43.83	+26.37	$\delta$ Piscium.
	29. 26. 15.30				32.65				67. 13. 56.23	+24.04	36 Andromedæ.
	45. 9. 47.49				58.14				82. 57. 53.91	+26.48	$\epsilon$ Piscium.
	- 26. 13. 59.47				42.39				1. 32. 26.42	+11.76	Polaris R.
	- 36. 13. 57.65								1. 32. 28.24		Polaris.
	41. 0. 50.11	29,540	50.4	47.6					78. 26. 32.41		$\delta$ .
	41. 0. 50.60								78. 26. 32.99		$\delta$ .
	41. 0. 51.24				50.30	38. 14.42		15. 58.14	78. 26. 33.54		$\delta$ .
	41. 0. 50.35								78. 26. 32.65		$\delta$ .
	41. 0. 49.91								78. 26. 32.24		$\delta$ .
	7. 31. 6.98				7.64				45. 18. 22.90	+19.24	$\xi$ Andromedæ.
	- 5. 5. 46.98				5.16				32. 41. 16.14	+16.61	$\Sigma$ 115.
11.57	52. 37. 52.90	29,188	53.0	50.3	1. 14.33				90. 26. 15.51	+2.14	$\star$ $\alpha$ R. 18° 29' 23".
	57. 6. 8.59				1. 27.68				91. 54. 44.55	+1.42	$\gamma$ Aquilæ.
	19. 1. 26.38								56. 48. 54.27	+11.86	$\beta$ Lyre R.
	19. 1. 29.15				19.61				56. 48. 57.04		$\beta$ Lyre.
	19. 2. 7.62								56. 49. 35.51	+11.86	$\beta$ Lyre (comes) n.
	19. 2. 7.51				19.61				56. 49. 35.40		$\beta$ Lyre (comes).
	57. 11. 12.54			49.2	1. 28.16				91. 59. 48.98	+5.87	$\gamma$ Aquilæ.
	2. 21. 53.87	29,130	49.9	46.0	2.37				40. 9. 4.52	+20.71	Piazzi XX. 429.
	14. 14. 15.68				14.53				52. 1. 38.49	+22.64	61 Cygni.
	22. 57. 51.75				23.87				60. 25. 3.90	+19.70	$\star$ $\alpha$ R. 21° 1' 9".
	42. 49. 57.09				53.04				80. 37. 58.41	+17.22	$\delta$ Equulei.
	63. 11. 16.32				1. 52.80				101. 0. 17.40	+13.37	$\Sigma$ 2776 (1st star).
	45. 11. 45.54	29,476	55.0	55.8	57.13	4.64			82. 59. 46.31		Mercury.
	49. 47. 27.54	29,492	55.6	56.6	1. 7.01	6.49		15. 56.90	87. 51. 33.24		$\zeta$ .
10.87	50. 19. 20.62				1. 8.28	6.55		5.23	87. 51. 33.73		$\zeta$ .
	54. 58. 30.32	29,514	56.4	57.2	1. 20.72	4.25	10.623		92. 46. 49.88		Venus.
	- 34. 22. 12.05	29,640	54.9	53.2					3. 24. 16.08	+12.60	$\delta$ Ursæ Min. R.
	- 34. 22. 12.18				39.25				3. 24. 16.85		$\delta$ Ursæ Minoris.
	13. 34. 6.76				13.86				51. 21. 28.90	+12.11	$\alpha$ Lyre R.
	13. 34. 5.10								51. 21. 27.24		$\alpha$ Lyre.
	57. 6. 6.47				1. 28.50				91. 54. 48.25	+1.45	$\gamma$ Aquilæ.
	19. 1. 24.19				19.80				56. 48. 56.27	+12.01	$\beta$ Lyre R.
	19. 1. 26.60								56. 48. 54.72		$\beta$ Lyre.
	41. 58. 6.41	29,670	52.2	50.5	51.93				79. 46. 6.62	+11.00	$\gamma$ Aquilæ R.
	41. 58. 5.44								79. 46. 5.65		$\gamma$ Aquilæ.
	46. 10. 58.32				1. 0.15				84. 59. 6.75	+10.26	$\beta$ Aquilæ R.
	46. 10. 56.34								84. 59. 4.77		$\beta$ Aquilæ.
	- 66. 30. 25.53	29,684	52.4	51.2	2. 11.99				- 28. 45. 27.24	12.19	$\alpha$ U. Maj. SP. R.
9.54	- 66. 30. 24.81								- 28. 45. 28.52		$\alpha$ Ursæ Maj. SP.
	50. 5. 25.07	29,716	47.8	44.3	1. 37.50				96. 54. 10.94	+23.42	$\phi$ Aquarii.
	62. 8. 4.42				1. 50.42				99. 57. 3.12	+24.31	$\phi^1$ Aquarii.
	58. 10. 42.12				1. 34.18				95. 59. 24.58	+23.79	96 Aquarii.
	55. 49. 58.95		47.4	43.9	1. 26.22				93. 58. 33.45	+25.42	$\eta$ Piscium.
	81. 7. 19.55				5. 59.55				119. 0. 21.58	+24.50	$\delta$ App. Sculp.
	56. 37. 51.42				1. 28.83				94. 26. 8.53	+25.93	$p$ Piscium.
	56. 6. 0.90				1. 27.09				93. 54. 35.97	+26.05	$q$ Piscium.
	50. 34. 0.43	29,808	52.0	52.0	1. 10.27	6.57		15. 57.40	88. 38. 10.31		$\zeta$ .
	51. 5. 53.62				1. 11.60	6.62			88. 38. 9.48		$\zeta$ .

Coincidence of Micrometer Wire with fixed Wire = 10,107, 10,114, 10,117, 10,121, 10,127 at the five wires. From Sept. 15 = 10,114, 10,124, 10,126, 10,128, 10,134.

One Micrometer Revolution = 30".868.

Correction for Run = 5".0. From Sept. 15 = 4".2.

Adopted Zenith Point = 115° 46' 10".48.

Assumed Co-latitude = 37° 47' 8".28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F								
			° ' "	° ' "	° ' "	° ' "	° ' "	° ' "					° ' "	° ' "	° ' "	
Sept. 19	<i>l</i> Aquilæ .....	169.50	2.17,1	13,1	18,3	16,1	12,7	16,1	6,408	+1.17,55			169.52.15,27			G.
	<i>β</i> Lyrae R. M. ....	273.40	3.29,3	24,0	29,5	25,4	20,9	26,0					273.44.42,93			G.
	<i>β</i> Lyrae .....	131.45	2.41,3	36,0	40,8	37,4	33,8	37,3					131.47.37,40			G.
	<i>φ</i> Aquarii .....	171.50	1.39,0	33,3	39,6	35,3	32,4	36,0					171.51.35,72			G.
	<i>ψ</i> <sup>1</sup> Aquarii .....	174.50	4.19,0	11,7	19,4	14,0	12,1	15,8					174.54.14,75			G.
	96 Aquarii .....	170.55	1.56,0	51,1	57,5	51,9	49,1	53,5	9,325	+16,68			170.56.52,92			G.
	<i>n</i> Piscium .....	168.35	1.14,3	7,7	14,7	11,8	7,4	11,6					168.36.11,08			G.
	<i>δ</i> App. Sculp. ....	193.50	3.30,8	24,7	30,5	25,4	22,3	28,8					193.53.26,60			G.
	<i>p</i> Piscium M. ....	169.20	3.29,0	22,7	29,7	24,9	21,8	27,4					169.23.42,13			G.
	<i>ω</i> Piscium .....	158.55	3.57,8	51,5	60,0	54,8	50,4	56,8					158.58.54,67			G.
	<i>q</i> Piscium .....	168.50	2.16,0	9,5	15,8	12,0	7,2	11,8					168.52.11,75			G.
Sept. 23	(a) <i>⊙</i> N.L. M. ....	164.50	3.24,8	22,2	26,2	23,3	21,0	23,4	9,348	+16,20			164.53.39,22			G.
	<i>⊙</i> S.L. ....	165.25	0.36,8	32,9	38,2	34,1	32,2	34,5					165.25.34,70			G.
Sept. 24	<i>⊙</i> S.L. M. ....	165.45	3.26,9	25,0	28,8	24,5	26,2	27,0	8,488	+34,15			165.49.0,07			G.
	<i>⊙</i> N.L. ....	165.15	2.4,8	2,9	6,6	2,3	2,2	2,6					165.17.3,28			G.
Sept. 25	<i>α</i> Cygni R. M. ....	285.15	1.11,2	8,7	12,9	10,0	5,5	9,0	9,184	+19,61			285.16.28,99			G.
	<i>α</i> Cygni .....	120.15	0.52,9	48,7	52,8	50,1	44,9	48,7					120.15.49,57			G.
	<i>η</i> Cephei R. M. ....	301.45	1.21,9	16,9	20,7	17,5	13,0	17,8	9,004	+23,38			301.46.41,16			G.
	<i>η</i> Cephei .....	103.45	0.41,4	36,8	40,8	39,0	33,9	38,1					103.45.36,25			G.
	61 Cygni M. ....	127.0	2.26,0	22,1	27,7	23,4	18,8	24,1	15,921	-2.0,98			127.0.22,37			G.
	* <i>ℛ</i> . 21 <sup>h</sup> . 1 <sup>m</sup> . 9 <sup>s</sup> ...	135.20	3.42,9	37,1	43,4	38,8	36,3	39,7					135.23.39,18			G.
	(b) <i>α</i> Equulei R. M. ..	245.5	4.21,1	16,0	20,4	15,9	12,9	17,8	7,975	+44,85			245.10.1,60			G.
	<i>α</i> Equulei .....	160.20	2.16,4	12,2	18,7	13,4	12,2	15,1					160.22.14,35			G.
	<i>ε</i> Pegasi R. M. ....	249.40	2.25,8	20,0	23,8	20,8	17,4	22,9	7,619	+52,27			249.43.13,72			G.
	<i>ε</i> Pegasi .....	155.45	4.7,3	2,2	9,3	3,3	2,2	5,9					155.49.4,47			G.
	<i>m</i> U. Maj. SP. R. M. ..	2.35	3.22,0	17,5	21,5	19,6	16,3	21,0	14,904	-1.39,75			2.36.39,43			G.
	<i>m</i> Ursæ Majoris SP. ..	42.55	0.44,3	39,5	40,5	40,3	36,3	42,0					42.55.40,38			G.
	<i>α</i> U. Maj. SP. R. M. ..	357.55	0.37,2	31,4	36,9	35,3	30,0	36,1	12,710	-53,97			357.54.40,43			G.
	<i>α</i> Ursæ Majoris SP. ..	47.35	2.43,0	37,8	40,5	38,8	34,8	40,6					47.37.38,88			G.
Sept. 26	(c) <i>⊙</i> S.L. M. ....	166.35	1.25,0	22,4	25,9	22,4	21,0	22,2	11,777	-34,49			166.35.48,46			G.
	<i>⊙</i> N.L. ....	166.0	3.54,9	51,3	57,5	52,8	50,4	52,2					166.3.52,65			G.
Sept. 29	<i>⊙</i> N.L. M. ....	167.15	1.27,2	24,8	26,8	26,0	23,0	24,6	16,963	-2.22,72			167.14.2,48			G.
	<i>⊙</i> S.L. ....	167.45	1.3,0	2,0	3,9	2,8	0,0	0,9					167.46.1,97			G.
	Polaris SP. R. M. ....	332.5	0.33,0	28,6	32,0	30,8	27,8	29,1	11,907	-37,21			332.4.52,94			G.
	Polaris SP. ....	73.25	2.31,1	26,0	29,0	26,8	23,2	26,4					73.27.26,75			G.
Sept. 30	(d) <i>⊙</i> N.L. M. ....	167.35	2.23,9	20,7	24,7	21,8	18,9	21,0	10,058	+1,38			167.37.22,88			G.
	<i>⊙</i> S.L. ....	168.5	4.22,3	20,0	22,0	19,3	19,8	20,0					168.9.19,97			G.
Oct. 1	<i>α</i> Ursæ Maj. R. M. ....	303.10	0.33,8	28,2	32,0	30,8	25,8	29,8	12,738	-54,51	+1	-0,29	303.9.35,20			G.
	<i>α</i> Ursæ Majoris ...	102.20	2.49,4	42,1	47,8	44,8	41,8	43,0					102.22.45,08			G.
Oct. 2	Polaris R. M. ....	329.0	0.31,5	26,1	30,8	28,6	24,9	28,8	10,684	-11,72			329.0.16,68			G.
	Polaris .....	76.30	2.10,1	2,5	9,3	5,4	1,2	5,8					76.32.5,48			G.
	<i>ξ</i> Andromedæ M. ....	120.15	2.15,6	7,4	13,9	9,4	5,4	9,2	10,048	+1,54			120.17.11,44			G.
	<i>ε</i> Cassiopeiæ R. M. ..	299.55	2.17,8	12,3	17,0	12,0	7,9	11,8					299.57.36,84			G.
	<i>ε</i> Cassiopeiæ .....	105.30	4.51,0	40,1	49,7	44,0	39,8	43,8	8,974	+23,96			105.34.44,20			G.
	* <i>ℛ</i> . 1 <sup>h</sup> . 17 <sup>m</sup> . 55 <sup>s</sup> ...	108.30	0.56,8	49,8	57,0	51,0	46,2	50,1					108.30.51,72			G.
	(c) * <i>ℛ</i> . 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> ...	108.35	1.45,8	38,2	45,9	39,8	35,3	39,9			+2	+0,34	108.36.40,63			G.
	* <i>ℛ</i> . 1 <sup>h</sup> . 24 <sup>m</sup> . 39 <sup>s</sup> ...	135.20	4.19,0	11,1	19,8	12,0	9,9	13,4					135.24.14,06			G.
	* <i>ℛ</i> . 1 <sup>h</sup> . 27 <sup>m</sup> . 44 <sup>s</sup> ...	132.55	1.17,2	10,7	16,8	10,8	7,2	10,1					132.56.12,00			G.
	* <i>ℛ</i> . 1 <sup>h</sup> . 33 <sup>m</sup> . 9 <sup>s</sup> ...	134.35	3.37,9	28,9	36,3	29,8	28,2	32,0	13,033	-1.0,75			134.38.31,78			G.
	<i>α</i> Ursæ Maj. R. M. ....	303.10	0.41,0	35,0	40,0	36,8	32,0	35,6					303.9.35,92			G.
	<i>α</i> Ursæ Majoris ...	102.20	2.51,0	44,8	50,3	45,2	41,9	44,2					102.22.45,92			G.

Coincidence at the middle wire and Runs taken Oct. 6, 1<sup>h</sup>. (Temp. 52°.)

(a) Between clouds.

(b) The mercury slightly waving. This observation is not used in determining the adopted zenith point.

(c) Misty.

(d) S.L. without the dark glass.

(e) Extremely faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
10,17	57. 6. 4,70	29,882	51,2	49,2	1. 29,96				94. 54. 43,03	+ 1,47	$\gamma$ Aquilæ.
	19. 1. 27,55								50. 48. 55,95		$\beta$ Lyrae R.
	19. 1. 26,92				20,12				56. 48. 55,32	+ 12,14	$\beta$ Lyrae.
	59. 5. 25,24	29,894	48,4	44,3	1. 38,18				96. 54. 11,70	+ 23,44	$\phi$ Aquarii.
	62. 8. 4,27				1. 51,08				99. 57. 3,63	+ 23,30	$\psi$ Aquarii.
	58. 10. 42,44				1. 34,75				95. 59. 25,47	+ 23,83	96 Aquarii.
	55. 50. 0,60			43,5	1. 26,81				93. 38. 35,69	+ 25,47	$\alpha$ Piscium.
	81. 7. 16,12				6. 2,05				119. 0. 26,45	+ 24,26	$\epsilon$ App. Sculp.
	56. 37. 31,65				1. 29,43				94. 26. 9,36	+ 25,98	$p$ Piscium.
	46. 12. 44,19				1. 1,55				84. 0. 54,02	+ 25,93	$\omega$ Piscium.
	56. 6. 1,27				1. 27,68				93. 54. 37,23	+ 26,11	$q$ Piscium.
	52. 7. 28,74	29,356	52,4	52,2	1. 13,13	6,73			90. 11. 41,82		$\odot$ .
	52. 39. 24,22				1. 14,54	6,77		15. 58,40	90. 11. 41,87		$\odot$ .
	53. 2. 49,59	29,500	53,3	55,8	1. 15,41	6,81			90. 35. 7,77		$\odot$ .
	52. 30. 52,80				1. 13,97	6,76		15. 58,70	90. 35. 6,99		$\odot$ .
9,28	7. 29. 41,49	29,964	52,0	50,5	7,68				45. 16. 57,45	+ 21,67	$\alpha$ Cygni R.
	7. 29. 39,09								45. 16. 55,05		$\alpha$ Cygni.
9,71	- 9. 0. 30,68				9,25				28. 46. 28,35	+ 23,53	$\eta$ Cephei R.
	- 9. 0. 32,23								28. 46. 26,80		$\eta$ Cephei.
	14. 14. 11,89				14,81				52. 1. 34,98	+ 24,70	$\delta$ Cygni.
	22. 37. 28,70				24,32				60. 25. 1,30	+ 21,33	* R. 21 <sup>h</sup> . 1 <sup>m</sup> . 9 <sup>s</sup> .
(7,98)	47. 36. 8,88								85. 24. 20,99	+ 17,09	$\alpha$ Equulei R.
	47. 56. 3,87				1. 3,83				85. 24. 15,98		$\alpha$ Equulei.
9,10	43. 2. 56,76		51,0	48,7	54,67				80. 50. 59,71	+ 20,04	$\epsilon$ Pegasi R.
	43. 2. 53,99								80. 50. 56,94		$\epsilon$ Pegasi.
9,91	- 69. 50. 28,93	29,972	50,0	46,8	2. 38,86				- 32. 5. 59,53	- 16,56	$m$ U. Maj. SP. R.
	- 69. 50. 30,10								- 32. 6. 0,68		$m$ Ursa Maj. SP.
9,66	- 65. 8. 29,95				2. 6,27				- 27. 23. 27,94	- 17,28	$\alpha$ U. Maj. SP. R.
	- 65. 8. 31,60								- 27. 23. 29,59		$\alpha$ Ursa Maj. SP.
	53. 49. 37,98	29,940	54,4	55,5	1. 18,78	6,89			91. 21. 58,95		$\odot$ .
	53. 17. 42,17				1. 17,26	6,84		15. 59,20	91. 21. 0,07		$\odot$ .
	54. 27. 52,00	29,496	56,0	56,1	1. 19,30	6,95			92. 32. 12,73		$\odot$ .
	54. 59. 51,49				1. 20,87	6,99		16. 0,10	92. 32. 13,55		$\odot$ .
9,85	- 39. 18. 42,46			57,6	46,34				- 1. 32. 20,52	+ 17,56	Polaris SP. R.
	- 39. 18. 43,73								- 1. 32. 21,79		Polaris SP.
	14. 14. 11,66	29,580	52,3	51,2	14,60				52. 1. 34,54	+ 23,40	$\delta$ Cygni.
	54. 51. 12,40	29,900	54,4	54,6	1. 21,84	6,98			92. 55. 35,94		$\odot$ .
	55. 23. 9,49				1. 23,47	7,03		16. 0,40	92. 55. 33,81		$\odot$ .
10,14	- 10. 23. 24,72	30,088	54,4	54,9	10,65				27. 23. 32,91	- 19,49	$\alpha$ Ursa Maj. R.
	- 10. 23. 25,40								27. 23. 32,23		$\alpha$ Ursa Majoris.
11,08	- 36. 14. 6,20	30,120	48,4	46,1	43,36				1. 32. 18,72	+ 18,96	Polaris R.
	- 36. 14. 5,00								1. 32. 19,92		Polaris.
	7. 31. 1,96				7,81				45. 18. 18,05	+ 24,38	$\epsilon$ Andromedæ.
10,52	- 7. 11. 26,36				7,47				30. 35. 34,45	+ 22,23	$\epsilon$ Cassiopeiæ R.
	- 7. 11. 26,28								30. 35. 34,53		$\epsilon$ Cassiopeiæ.
	- 4. 15. 18,76				4,40				33. 31. 45,12	+ 22,45	* R. 1 <sup>h</sup> . 17 <sup>m</sup> . 55 <sup>s</sup> .
	- 4. 9. 29,85				4,30				33. 37. 34,13	+ 22,42	* R. 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> .
	23. 38. 3,58				24,68				60. 25. 36,54	+ 25,83	* R. 1 <sup>h</sup> . 24 <sup>m</sup> . 39 <sup>s</sup> .
	20. 10. 1,52				21,74				57. 57. 31,54	+ 25,30	* R. 1 <sup>h</sup> . 27 <sup>m</sup> . 44 <sup>s</sup> .
	21. 52. 21,30				23,76				59. 39. 53,34	+ 25,31	* R. 1 <sup>h</sup> . 33 <sup>m</sup> . 9 <sup>s</sup> .
10,92	- 10. 23. 23,44		49,0	48,8	10,80				27. 23. 32,04	19,83	$\alpha$ Ursa Maj. R.
	- 10. 23. 24,56								27. 23. 32,92		$\alpha$ Ursa Majoris.

Coincidence of Micrometer Wire with fixed Wire - 10', 124 at the middle wire. From Oct. 1 - 10', 112, 10', 119, 10', 122, 10', 126, 10', 132 at the five wires.  
 One Micrometer Revolution - 20", 365  
 Correction for Run - 4", 2. From Oct. 2 - - 3", 4.  
 Adopted Zenith Point - 112' 46" 10', 48.  
 Assumed Co-latitude - 37' 47" 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F								
			"	"	"	"	"	"					"	"	"	
Oct. 3	(a) ☉ N.L. M.....	168.45	2.29,3	24,0	28,7	25,4	23,8	24,2	10,820	-14,57			168.47.11,06			G.
	☉ S.L. M.....	169.15	4.15,1	9,2	16,1	11,0	8,5	10,7					169.19.11,30			G.
Oct. 4	(b) ☽ S.L. M.....	190.20	0.21,8	16,1	20,4	18,7	15,2	18,2	11,020	-18,95	-2	-4,66	190.19.54,76			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,156	-21,65	-1	-2,33	190.19.54,39			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,270	-23,96			190.19.54,41			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,434	-27,30	+1	+2,33	190.19.53,40			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,553	-29,66	+2	+4,66	190.19.53,37			G.
	β Aquilæ R. M....	246.35	0.45,0	40,4	44,0	39,4	37,7	40,8	11,408	-26,84			246.35.14,29			G.
	β Aquilæ.....	158.55	2.9,1	3,3	9,9	6,3	2,4	6,3					158.57.5,98			G.
Oct. 6	Venus S.L.....	177.5	1.49,7	45,9	50,4	47,0	45,2	46,0					177.6.47,17			G.
	Arcturus R. M....	260.30	4.22,2	15,9	19,8	17,4	15,2	18,1	8,660	+30,51			260.34.48,13			G.
	Arcturus.....	144.55	2.35,1	30,8	35,2	31,0	30,8	29,8					144.57.31,83			G.
	ε Capricorni.....	180.45	1.22,8	18,4	23,0	19,5	17,7	19,8					180.46.20,05			G.
	α Cephei R. M....	302.25	1.38,4	33,2	38,1	34,8	30,3	33,9	5,550	+1.35,40			302.28.10,02			G.
	α Cephei.....	103.0	4.16,0	9,1	15,0	10,9	7,4	9,8					103.4.10,90			G.
	☽ S.L. M.....	182.0	4.55,9	51,2	58,3	51,9	50,0	53,3	10,660	-11,43	-2	-7,36	182.4.34,09			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	10,869	-15,65	-1	-3,68	182.4.33,55			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,034	-19,03			182.4.33,85			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,172	-21,83	+1	+3,68	182.4.34,73			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,363	-25,69	+2	+7,36	182.4.34,55			G.
	ε Pegasi R. M....	249.40	3.25,6	19,3	22,6	18,8	16,4	21,4	10,382	-5,42			249.43.14,88			G.
	ε Pegasi.....	155.45	4.7,0	2,3	8,9	2,4	1,4	4,0					155.49.3,88			G.
	δ Capricorni.....	181.45	2.14,9	9,5	15,2	10,4	7,2	11,4					181.47.11,18			G.
	(c) ♈ Aquarii.....	179.30	4.64,4	59,0	65,7	61,3	57,8	60,8					179.35.1,50			G.
	α U. Maj. SP. R. M.	357.55	0.30,0	23,2	29,7	26,1	22,5	27,2	12,137	-42,05			357.54.44,35			G.
	α Ursæ Majoris SP.	47.35	2.41,0	34,0	37,9	34,1	32,0	36,1					47.37.35,57			G.
	Uranus.....	170.40	0.51,3	46,9	53,6	47,4	45,2	47,8					170.40.48,62			G.
	λ Draco SP. R. M.	350.20	0.15,1	11,0	16,0	13,7	8,1	12,8	12,699	-53,78			350.19.18,99			G.
	λ Draconis SP....	55.10	2.65,6	60,0	64,2	60,0	58,0	61,8					55.13.1,25			G.
Oct. 7	(d) ☉ N.L. M.....	170.15	3.29,0	25,1	29,4	25,1	25,0	26,2	7,009	+1.4,96			170.19.31,41			G.
	☉ S.L. M.....	170.50	1.36,8	33,8	38,0	32,9	33,2	33,3					170.51.34,58			G.
	Venus S.L.....	177.30	4.20,8	16,8	22,2	18,0	16,0	18,2					177.34.18,43			G.
	δ Capricorni.....	181.45	2.14,3	7,7	14,9	10,0	7,0	10,7					181.47.10,65			G.
	☽ S.L. M.....	176.30	4.12,5	6,3	14,3	8,0	7,5	9,8	10,493	-7,95	-2	-8,22	176.33.53,35			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	10,692	-11,95	-1	-4,11	176.33.53,46			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	10,934	-16,94			176.33.52,58			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,148	-21,33	+1	+4,11	176.33.52,30			G.
	☽ S.L. M.....	...	...	...	...	...	...	...	11,358	-25,59	+2	+8,22	176.33.52,15			G.
	η Aquarii.....	165.50	3.47,0	41,0	50,7	42,4	41,0	44,0					165.53.44,15			G.
	λ Aquarii.....	173.20	2.42,3	35,7	42,8	37,2	36,3	38,2					173.22.38,62			G.
	Uranus.....	170.40	1.38,8	33,5	40,1	33,8	33,3	35,6					170.41.35,77			G.
	(e) α Ursæ Maj. R. M.	303.10	0.23,6	17,4	22,4	18,8	13,2	17,8	12,230	-44,09			303.9.34,85			G.
	α Ursæ Majoris...	102.20	2.51,1	45,0	51,8	46,3	43,6	44,7					102.22.46,93			G.
	β Leonis R. M....	256.0	2.20,1	15,0	18,8	15,6	13,2	15,1	11,500	-28,76			256.1.47,42			G.
	β Leonis.....	149.30	0.33,9	28,3	33,8	28,8	29,2	28,6					149.30.30,40			G.
	(f) γ Ursæ Maj. R. M.	295.5	3.25,5	18,9	25,0	21,1	16,8	19,8	11,073	-19,76	+1	-0,21	295.8.1,03			G.
	γ Ursæ Majoris...	110.20	4.25,0	17,0	23,6	17,0	16,1	16,8			+2	+0,85	110.24.19,87			G.
Oct. 8	☉ S.L. M.....	171.10	4.41,4	36,8	43,0	39,3	38,5	40,9	10,630	-10,60			171.14.29,13			G.
	☉ N.L.....	170.40	2.29,7	24,9	29,2	28,0	25,0	28,0					170.42.27,33			G.
	Polaris SP. R. M.	332.5	0.41,2	36,0	43,7	38,2	38,1	36,4	12,456	-48,71			332.4.50,19			G.
	Polaris SP.....	73.25	2.37,2	34,0	36,8	32,5	32,2	32,8					73.27.34,12			G.
	(g) Mercury, center...	173.55	3.48,4	44,0	49,2	45,9	44,0	45,1					173.58.45,90			G.
	Arcturus R. M....	260.30	4.33,2	28,0	30,8	28,4	26,3	29,8	9,159	+20,09			260.34.49,27			G.
	Arcturus.....	144.55	2.32,8	29,8	33,5	28,9	29,1	28,3					144.57.30,27			G.
	α U. Maj. SP. R. M.	357.55	0.37,8	32,7	38,3	34,0	31,8	34,8	12,584	-51,38			357.54.43,49			G.
	α Ursæ Majoris SP.	47.35	2.41,3	36,1	39,3	35,7	32,8	36,4					47.37.36,80			G.

Runs taken Oct. 12, 1½h. (Temp. 52°.)

(a) Badly defined limbs.

(b) Very much clouded.

(c) No correction for Runs.

(d) Cloudy.

(e) Neatly defined, bright and steady.

(f) Very faint.

(g) Not well-defined.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1849.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
10,14	56. 1. 1,58	30,108	51,0	50,5	1. 26,77	7,08	16. 1,20	16. 1,20	94. 5. 30,75	+ 10,78	⊙.
	56. 33. 0,82				1. 28,52	7,13			94. 5. 29,29		⊙.
	77. 53. 44,28	30,040	50,4	48,5					114. 17. 4,52		⊙.
	77. 53. 43,91								114. 17. 4,15		⊙.
	77. 53. 43,93				4. 20,27	53. 14,63			114. 17. 4,17		⊙.
	77. 53. 42,92								114. 17. 3,16		⊙.
	77. 53. 42,89								114. 17. 3,13		⊙.
	46. 10. 56,19				1. 1,15				83. 59. 5,62		β Aquilæ R.
	46. 10. 55,50								83. 59. 4,93		β Aquilæ.
9,98	64. 20. 36,69	30,038	51,3	51,8	2. 0,86	4,87	10,658	5,63	102. 9. 35,30	- 12,48	Venus.
	32. 11. 22,35				36,72				69. 59. 7,35		Arcturus R.
	32. 11. 21,35								69. 59. 6,35		Arcturus.
	68. 0. 9,57		49,8	48,3	2. 24,44				105. 49. 42,29		α Capricorni.
	- 9. 41. 59,54								28. 4. 58,70		α Cephei R.
	- 9. 41. 59,58				10,04				28. 4. 58,66		α Cephei.
	69. 18. 23,61								106. 0. 49,80		⊙.
	69. 18. 23,07								106. 0. 49,26		⊙.
	69. 18. 23,37				2. 34,31	52. 3,74			106. 0. 49,56		⊙.
	69. 18. 24,25								106. 0. 50,44		⊙.
10,46	69. 18. 24,07						15. 12,66	15. 12,66	106. 0. 50,26	+ 26,40	⊙.
	43. 2. 35,60								80. 50. 58,73		α Pegasi R.
	43. 2. 53,40				54,85				80. 50. 56,53		α Pegasi.
	69. 1. 0,70				2. 32,02				106. 50. 41,00		β Capricorni.
	66. 48. 51,02		46,1		2. 16,96				104. 38. 16,26		α Aquarii.
	- 65. 8. 33,87		47,5	45,0	2. 7,02				- 27. 23. 32,61		α U. Maj. SP. R.
	- 65. 8. 34,91								- 27. 23. 33,65		α Ursa Maj. SP.
	57. 54. 38,14				1. 34,08	0,88			95. 43. 20,12		Uranus.
	- 57. 33. 8,51				1. 32,79				- 19. 47. 33,02		α Draconis SP. R.
	- 57. 33. 9,23								- 19. 47. 33,74		α Draconis SP.
9,38	57. 33. 20,93	30,030	50,5	50,7	1. 31,70	7,22	16. 2,40	16. 2,40	95. 37. 56,09	+ 14,04	⊙.
	58. 5. 24,10				1. 33,61	7,27			95. 37. 56,32		⊙.
	64. 48. 7,95			51,0	2. 3,52	4,90			102. 37. 9,37		Venus.
	69. 1. 0,17	30,080	46,6	43,5	2. 33,76				106. 50. 42,21		β Capricorni.
	63. 47. 42,87			42,6					100. 30. 50,61		⊙.
	63. 47. 42,98								100. 30. 50,72		⊙.
	63. 47. 42,10				2. 0,41	50. 35,78			100. 30. 49,84		⊙.
	63. 47. 41,82								100. 30. 49,56		⊙.
	63. 47. 41,67								100. 30. 49,41		⊙.
	53. 7. 33,67				1. 19,22				90. 56. 1,17		η Aquarii.
10,89	60. 36. 28,14			42,0	1. 13,46		15. 25,17	15. 25,17	98. 25. 21,88	+ 21,55	α Aquarii.
	57. 55. 25,29			42,3	1. 34,79	0,88			95. 44. 7,98		Uranus.
	- 10. 23. 24,37	30,190	46,8	47,0	10,86				27. 23. 33,05		α Ursa Maj. R.
	- 10. 23. 23,55								27. 23. 33,87		α Ursa Majoris.
	36. 44. 23,06	30,200	48,6	49,3	43,99				74. 32. 15,33		β Leonis R.
	36. 44. 19,92								74. 32. 12,19		β Leonis.
	- 2. 21. 30,55				2,44				35. 25. 15,29		γ Ursa Maj. R.
	- 2. 21. 30,61								35. 25. 15,23		γ Ursa Majoris.
12,16	58. 28. 18,65	30,202	49,8	51,8	1. 35,33	7,30	16. 2,60	16. 2,60	96. 0. 52,36	+ 21,06	⊙.
	57. 36. 16,85				1. 33,38	7,25			96. 0. 53,86		⊙.
	- 39. 18. 39,71				48,00				- 1. 32. 19,43		Polaris SP. R.
	- 39. 18. 36,36								- 1. 32. 16,08		Polaris SP.
	61. 12. 35,42			52,3	1. 46,24	5,30			99. 1. 24,64		Mercury
	32. 11. 21,21		50,8	52,2	36,89				69. 59. 6,38		Arcturus R.
	32. 11. 19,79								69. 59. 4,96		Arcturus.
	- 65. 8. 33,01	30,222	46,8	44,0	2. 8,07				- 27. 23. 32,80		α U. Maj. SP. R.
	- 65. 8. 33,68								- 27. 23. 33,47		α Ursa Maj. SP.

Coincidence of Micrometer Wire with fixed Wire = 107,112, 107,119, 107,122, 107,126, 107,132 at the five wires.

One Micrometer Revolution = 20",8658.

Correction for Runs = - 3",4. From Oct. 7 = - 1",6.

Adopted Zenith Point = 112°. 46' 10",48.

Assumed Co-latitude = 37° 47' 8",28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			"	"	"	"	"	"						
Oct. 8	(a) S.L. M.....	170. 20	4. 14,8	9,3	17,1	10,2	9,7	11,4	10,391	- 5,82	-2	- 8,80	170. 23. 57,25	G.
	S.L. M.....	...	...	...	...	...	...	...	10,538	- 8,75	-1	- 4,40	170. 23. 58,72	G.
	S.L. M.....	...	...	...	...	...	...	...	10,790	- 13,94			170. 23. 57,93	G.
	S.L. M.....	...	...	...	...	...	...	...	11,060	- 19,49	+1	+ 4,40	170. 23. 56,78	G.
	S.L. M.....	...	...	...	...	...	...	...	11,219	- 22,69	+2	+ 8,80	170. 23. 57,98	G.
	Uranus.....	170. 40	2. 24,5	19,8	24,8	20,2	18,2	21,0					170. 42. 21,30	G.
	$\kappa^1$ Piscium.....	164. 30	4. 33,7	27,2	36,4	28,8	28,3	31,8					164. 34. 30,80	G.
	$\lambda$ Piscium.....	164. 0	3. 24,4	18,9	25,4	18,4	17,1	21,0					164. 3. 20,68	G.
Oct. 9	N.L. M.....	171. 0	4. 23,2	20,0	25,0	20,8	20,8	21,9	7,518	+ 54,43			171. 5. 16,15	G.
	S.L.....	171. 35	2. 22,0	20,4	23,8	19,9	19,0	19,8					171. 37. 20,68	G.
	Mercury, center...	174. 40	0. 50,4	48,9	52,8	50,3	47,2	48,0					174. 40. 49,55	G.
	Arcturus R. M....	260. 35	0. 28,1	24,9	27,4	25,7	23,1	25,1	11,923	- 37,51			260. 34. 48,19	G.
	Arcturus.....	144. 55	2. 33,0	27,5	33,8	27,4	28,0	28,1					144. 57. 29,50	G.
	Venus S.L.....	178. 25	3. 28,5	25,8	30,4	26,4	27,0	26,9					178. 28. 27,32	G.
	$\alpha$ Coron. Bor. R. M.	267. 45	3. 41,8	38,9	42,0	38,9	35,6	38,7	8,868	+ 26,25			267. 49. 5,87	G.
	$\alpha$ Coronæ Borealis.	137. 40	3. 16,2	13,2	17,5	12,8	13,8	14,4					137. 43. 14,48	G.
	$\lambda$ Piscium.....	164. 0	3. 24,6	19,0	25,0	19,3	19,2	22,2					164. 3. 21,37	G.
	$\gamma$ U. Maj. SP. R. M.	5. 55	1. 26,4	22,9	26,1	21,4	20,9	23,2	13,210	- 1. 4,35			5. 55. 19,07	G.
	$\gamma$ Ursæ Majoris SP.	39. 35	1. 64,8	60,1	65,2	59,7	57,6	60,8					39. 37. 1,27	G.
	S.L. M.....	163. 45	4. 65,8	59,9	68,8	60,4	60,1	62,4	10,387	- 5,65	-2	- 9,10	163. 49. 47,88	G.
	S.L. M.....	...	...	...	...	...	...	...	10,609	- 10,15	-1	- 4,55	163. 49. 47,93	G.
	S.L. M.....	...	...	...	...	...	...	...	10,795	- 13,96			163. 49. 48,67	G.
	S.L. M.....	...	...	...	...	...	...	...	11,038	- 18,95	+1	+ 4,55	163. 49. 48,23	G.
	S.L. M.....	...	...	...	...	...	...	...	11,293	- 24,15	+2	+ 9,10	163. 49. 47,58	G.
	* R. 23 <sup>h</sup> . 53 <sup>m</sup> . 42 <sup>s</sup> .	100. 20	4. 63,8	57,9	65,3	58,4	56,5	58,8			+3	+ 2,84	100. 25. 2,69	G.
	$\Sigma$ 2.....	86. 5	4. 38,9	32,1	38,3	33,1	31,3	33,8					86. 9. 34,35	G.
	B Piscium.....	157. 0	1. 41,7	36,9	43,2	36,8	38,1	38,8					157. 1. 39,17	G.
	d Piscium.....	157. 35	4. 32,2	25,9	34,5	26,0	27,9	29,9					157. 39. 29,17	G.
	10 Ceti.....	165. 50	3. 27,5	22,1	29,8	21,0	21,6	24,8					165. 53. 24,28	G.
	$\alpha$ Cassiopeiæ R. M.	296. 10	3. 30,4	26,8	30,8	24,9	22,8	25,5	10,658	- 11,10			296. 13. 15,58	G.
	$\alpha$ Cassiopeiæ.....	109. 15	4. 11,0	3,2	11,7	4,6	1,2	5,2					109. 19. 5,93	G.
	$\eta$ Cassiopeiæ.....	108. 0	0. 50,0	44,0	51,8	45,9	42,0	45,1					108. 0. 46,42	G.
	$\alpha$ Ursæ Maj. R. M.	303. 10	0. 32,1	27,0	31,0	28,4	23,8	27,2	12,745	- 54,66			303. 9. 33,56	G.
	$\alpha$ Ursæ Majoris...	102. 20	2. 52,4	46,2	51,9	46,9	44,4	45,9					102. 22. 47,80	G.
Oct. 10	S.L. M.....	172. 0	0. 25,0	23,1	25,3	22,5	21,8	22,0	10,940	- 16,98			172. 0. 6,29	G.
	N.L.....	171. 25	3. 2,8	1,0	5,5	1,6	1,0	1,5					171. 28. 2,03	G.
	(b) Mercury, center...	175. 20	2. 18,5	16,8	19,8	18,0	16,1	17,2					175. 22. 17,62	G.
	Arcturus R. M....	260. 35	0. 37,8	33,7	35,3	34,9	31,8	34,0	12,341	- 46,22			260. 34. 48,33	G.
	Arcturus.....	144. 55	2. 33,9	31,0	35,4	30,2	30,8	29,8					144. 57. 31,72	G.
	Venus S.L.....	178. 55	0. 1,8	1,8	5,7	3,0	0,0	0,2					178. 55. 2,08	G.
	Uranus.....	170. 40	3. 54,2	49,1	56,3	49,2	50,8	51,8					170. 43. 51,70	G.
	* R. 23 <sup>h</sup> . 53 <sup>m</sup> . 42 <sup>s</sup> .	100. 20	5. 8,8	1,3	9,1	2,4	1,0	3,8					100. 25. 4,13	G.
	B Piscium.....	157. 0	1. 42,8	36,6	43,8	37,2	38,7	40,0					157. 1. 39,77	G.
	$\alpha$ Cassiopeiæ R. M.	296. 10	2. 26,0	22,0	25,3	21,8	18,2	21,9	7,648	+ 51,72			296. 13. 14,12	G.
	$\alpha$ Cassiopeiæ.....	109. 15	4. 10,9	3,1	11,5	4,8	3,1	5,4					109. 19. 6,25	G.
	(c) S.L. M.....	157. 5	3. 20,2	15,1	21,0	14,8	15,2	17,8	4,330	+ 2. 0,75	-2	- 9,04	157. 10. 8,88	G.
	S.L. M.....	...	...	...	...	...	...	...	4,574	+ 1. 55,79	-1	- 4,52	157. 10. 8,44	G.
	N.L.....	156. 35	2. 39,3	33,8	39,8	32,2	34,1	35,5					156. 37. 35,65	G.
	N.L. M.....	...	...	...	...	...	...	...	10,369	- 4,99	+1	+ 4,52	156. 37. 35,18	G.
	N.L. M.....	...	...	...	...	...	...	...	10,597	- 9,62	+2	+ 9,04	156. 37. 35,07	G.
	$\epsilon$ Piscium.....	157. 55	0. 57,9	53,0	60,8	53,4	53,0	54,6					157. 55. 55,40	G.
	Polaris R. M.....	329. 0	0. 38,8	34,3	38,0	36,3	33,9	36,6	10,891	- 15,96			329. 0. 20,32	G.
	Polaris.....	76. 30	2. 11,0	1,1	9,0	3,8	0,7	5,1					76. 32. 5,00	G.
	$\eta$ Piscium.....	150. 25	1. 43,3	35,2	45,5	35,8	36,8	37,9					150. 26. 39,00	G.
Oct. 11	Uranus.....	170. 40	4. 37,8	31,4	39,5	32,0	31,8	35,4					170. 44. 34,40	G.
	$\kappa^1$ Piscium.....	164. 30	4. 33,7	26,4	35,1	27,4	26,3	31,2					164. 34. 29,78	G.
	$\epsilon$ Piscium.....	157. 55	0. 57,2	51,6	59,4	52,7	49,8	54,0					157. 55. 54,07	G.
	Polaris R. M.....	329. 0	0. 49,3	44,3	49,8	46,2	42,3	45,9	11,420	- 27,00			329. 0. 19,27	G.
	Polaris.....	76. 30	1. 66,5	59,5	66,6	62,0	58,2	62,2					76. 32. 2,40	G.

Coincidence at the middle wire taken Oct. 12, 1<sup>h</sup>.

(a) Not satisfactory.

(b) Extremely faint.

(c) S.L. not fully illuminated. Correction applied for defect of illumination = + 0", 17.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET
			Attach.	Free.							
-	- - -	Inch.	-	-	- "	- "	-	- "	- - -	-	-
	57. 37. 46.77	30,222	46.8	44.0					94. 22. 32.61		♄.
	57. 37. 48.24								94. 22. 34.08		♄.
	57. 37. 47.45				1. 33.83	48. 17.72		15. 38.55	94. 22. 33.29		♄.
	57. 37. 46.30								94. 22. 32.14		♄.
	57. 37. 47.50								94. 22. 33.34		♄.
	57. 36. 10.82			43.7	1. 35.01	0.38			95. 44. 53.73		♅.
	51. 48. 20.32				1. 15.73				89. 36. 44.33	+ 25.17	♆ Piscium.
	51. 17. 10.20				1. 14.34				89. 5. 52.82	+ 25.04	♆ Piscium.
	58. 19. 5.67	30,258	48.8	51.7	1. 34.96	7.29			96. 23. 44.52		♁.
	58. 51. 10.20				1. 36.96	7.33		16. 2.90	96. 23. 45.21		♁.
	61. 54. 39.07			53.0	1. 49.41	5.35			99. 43. 31.41		♁ Mercury.
8.85	32. 11. 22.29	30,250	50.0						69. 59. 7.45	- 13.05	♁ Arcturus R.
	32. 11. 19.02				36.88				69. 59. 4.18		♁ Arcturus.
	65. 42. 16.84				2. 9.10	4.96	10,658	5.58	103. 31. 23.74		♁ Venus.
9.93	24. 57. 5.11	30,236	50.8	53.4					62. 44. 40.62	- 6.31	♁ Corone Bor. R.
	24. 57. 4.00				27.23				62. 44. 39.51		♁ Corone Bor.
	51. 17. 10.89	30,242	46.8	44.0	1. 14.34				89. 5. 33.51	+ 25.97	♆ Piscium.
10.17	- 73. 9. 8.59				3. 14.68				- 35. 25. 14.99	- 19.79	♁ U. Maj. SP. R.
	- 73. 9. 9.21								- 35. 25. 15.61		♁ U. Maj. SP.
	51. 3. 37.40								87. 51. 3.52		♄.
	51. 3. 37.03								87. 51. 3.57		♄.
	51. 3. 38.19				1. 13.74	45. 4.30		15. 51.60	87. 51. 4.31		♄.
	51. 3. 37.75								87. 51. 3.87		♄.
	51. 3. 37.10								87. 51. 3.22		♄.
	- 12. 21. 7.79				13.07				25. 25. 47.42	+ 27.98	♁ R. 23 <sup>h</sup> . 53 <sup>m</sup> . 42 <sup>s</sup> .
	- 26. 36. 36.13				29.90				11. 10. 2.25	+ 26.37	♁ Σ 2.
	44. 15. 28.69			43.2	58.20				82. 3. 35.17	+ 27.77	♆ Piscium.
	44. 53. 18.69				59.49				82. 41. 26.46	+ 27.84	♆ Piscium.
	53. 7. 13.80				1. 19.54				90. 55. 41.62	+ 27.37	♁ 10 Ceti.
10.76	- 3. 27. 5.10				3.61				34. 19. 59.57	+ 27.19	♁ Cassiopeia R.
	- 3. 27. 4.55								34. 20. 0.12		♁ Cassiopeia.
	- 4. 15. 24.06				4.98				33. 1. 39.24	+ 26.09	♁ Cassiopeia.
10.68	- 10. 23. 23.08	30,268	47.0	46.5	10.90				27. 23. 34.30	- 22.17	♁ U. Maj. R.
	- 10. 23. 22.68								27. 23. 34.70		♁ U. Majoris.
	59. 13. 55.81	30,270	50.8	52.5	1. 38.29	7.36			96. 46. 31.84		♁.
	58. 41. 51.55				1. 36.23	7.32		16. 3.20	96. 46. 31.96		♁.
	62. 36. 7.14			53.5	1. 52.56	5.40			100. 25. 2.58		♁ Mercury.
10.03	32. 11. 24.15								69. 59. 7.30	- 13.25	♁ Arcturus R.
	32. 11. 21.24				36.87				69. 59. 6.39		♁ Arcturus.
	66. 8. 51.60				2. 11.73	4.99	10,650	5.50	103. 58. 1.18		♁ Venus.
	57. 57. 41.22	30,260	47.4	44.4	1. 35.08	0.38			95. 46. 24.20		♅.
	- 12. 21. 6.35		46.8	43.6	13.09				25. 25. 48.84	+ 28.31	♁ R. 23 <sup>h</sup> . 53 <sup>m</sup> . 42 <sup>s</sup> .
	44. 15. 29.29				58.19				82. 3. 35.76	+ 27.82	♆ Piscium.
10.18	- 3. 27. 3.64				3.61				34. 20. 1.03	+ 27.49	♁ Cassiopeia R.
	- 3. 27. 4.23								34. 20. 0.44		♁ Cassiopeia.
	44. 23. 58.40								81. 15. 1.07		♄.
	44. 23. 57.96				58.17	41. 0.90			81. 15. 0.63		♄.
	43. 51. 25.17							16. 3.35	81. 14. 57.48		♄.
	43. 51. 24.70				57.38	40. 36.70			81. 14. 57.01		♄.
	43. 51. 24.59								81. 14. 56.90		♄.
	65. 9. 44.92				1. 0.03				82. 57. 53.25	+ 28.41	♆ Piscium.
12.66	- 36. 14. 9.84				43.78				1. 32. 14.66	+ 21.96	♁ Polaris R.
	- 36. 14. 5.48				46.13				1. 32. 19.02		♁ Polaris.
	37. 60. 28.52								75. 28. 22.93	+ 28.12	♁ Piscium.
	57. 58. 23.92	30,442	46.0	43.9	1. 35.80	0.38			95. 47. 7.62		♅.
	51. 48. 19.30				1. 16.24				80. 36. 43.82	+ 25.21	♆ Piscium.
	65. 9. 43.59			43.0	1. 0.49				82. 57. 52.36	+ 28.45	♆ Piscium.
10.84	- 36. 14. 8.79				44.10				1. 32. 15.39	+ 22.36	♁ Polaris R.
	- 36. 14. 8.08								1. 32. 16.10		♁ Polaris.

Coincidence of Micrometer Wire with fixed Wire - 10', 112, 10', 119, 10', 122, 10', 126, 10', 132 at the five wires. From Oct. 9 - 10', 116, 10', 123, 10', 126, 10', 130, 10', 136.

One Micrometer Revolution - 20", 808

Correction for Hum. - 1".6

Adopted Zenith Point - 112' 45" 10', 48

Assumed Co-latitude - 57' 47".8, 98



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F								
			"	"	"	"	"	"					"	"	"	
Oct. 11	ξ Andromedæ M.	120.15	3.17,8	10,6	16,8	11,9	8,0	12,8	13,123	-1.2,55			120.17.10,27			G.
	Σ 115.....	107.40	0.19,7	12,8	19,0	13,9	9,0	14,7					107.40.14,75			G.
	* R. 1 <sup>h</sup> . 16 <sup>m</sup> . 5 <sup>s</sup> ...	130.0	4.33,0	25,0	33,4	24,9	23,0	27,8					130.4.27,62			G.
	* R. 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> . M.	131.35	4.34,7	27,0	35,2	27,6	26,4	30,3	15,871	-1.59,88			131.37.30,09			G.
	η Piscium.....	150.25	1.42,0	35,1	43,9	37,0	35,8	38,4					150.26.38,62			G.
	) N.L. M.....	150.15	0.55,4	49,4	57,9	49,9	49,3	51,0	10,540	-8,85	-2	-8,46	150.15.34,79			G.
	) N.L. M.....	...	...	...	...	...	...	...	10,768	-13,45	-1	-4,23	150.15.34,42			G.
	) N.L. M.....	...	...	...	...	...	...	...	10,958	-17,36			150.15.34,74			G.
	) N.L. M.....	...	...	...	...	...	...	...	11,200	-22,33	+1	+4,23	150.15.34,00			G.
	) N.L. M.....	...	...	...	...	...	...	...	11,437	-27,15	+2	+8,46	150.15.33,41			G.
	α Trianguli.....	136.10	0.28,0	20,2	27,4	20,9	18,5	22,9					136.10.22,97			G.
	α Arietis R. M.....	263.15	1.29,8	25,0	29,0	24,8	21,2	25,9	9,948	+3,72			263.16.29,59			G.
	α Arietis.....	142.15	0.54,0	47,1	56,1	48,8	48,8	48,8					142.15.50,55			G.
	θ <sup>1</sup> Arietis.....	145.45	3.33,7	26,2	35,2	26,5	27,7	29,8					145.48.29,67			G.
Oct. 12	ψ Arietis.....	147.55	3.25,3	16,4	25,8	17,0	17,0	19,8					147.58.20,03			G.
	⊙ S.L. M.....	172.40	4.24,0	20,4	25,4	21,1	21,8	22,1	7,353	+57,87			172.45.20,10			G.
	⊙ N.L.....	172.10	3.17,2	13,5	17,8	13,8	12,9	14,1					172.13.14,72			G.
	Arcturus R. M.....	260.30	4.21,7	16,0	19,8	16,9	15,0	17,2	8,694	+29,89			260.34.47,42			G.
	Arcturus.....	144.55	2.34,0	31,6	35,5	31,0	31,0	31,0					144.57.32,22			G.
	Venus S.L.....	179.45	2.10,0	7,6	11,2	8,4	8,0	7,3					179.47.8,63			G.
	θ <sup>1</sup> Arietis.....	145.45	3.31,2	24,7	32,0	24,4	26,0	27,7					145.48.27,48			G.
	ψ Arietis.....	147.55	3.23,8	16,0	23,6	16,0	16,2	18,2					147.58.18,78			G.
	A.S.C. 268. M.....	158.50	2.20,8	15,2	22,8	16,7	16,0	18,3	15,788	-1.58,15			158.50.20,03			G.
	A.S.C. 271.....	141.0	1.19,9	13,4	19,8	12,4	12,6	15,2					141.1.15,48			G.
	θ Persei M.....	116.25	1.35,2	28,2	33,6	29,0	25,3	30,1	12,067	-40,50			116.25.49,65			G.
	μ Arietis.....	145.35	3.29,0	20,9	28,9	20,8	24,1	24,3					145.38.24,48			G.
	) N.L. M.....	144.40	0.27,0	19,9	27,4	20,6	22,0	22,4	10,651	-11,16	-2	-7,20	144.40.4,84			G.
	) N.L. M.....	...	...	...	...	...	...	...	10,782	-13,75	-1	-3,60	144.40.5,85			G.
	) N.L. M.....	...	...	...	...	...	...	...	10,950	-17,19			144.40.6,01			G.
	) N.L. M.....	...	...	...	...	...	...	...	11,160	-21,50	+1	+3,60	144.40.5,30			G.
	) N.L. M.....	...	...	...	...	...	...	...	11,347	-25,27	+2	+7,20	144.40.5,13			G.
	Polaris SP. R. M.....	332.5	0.32,2	26,9	31,6	28,0	27,2	28,3	12,124	-41,70			332.4.47,30			G.
	Polaris SP.....	73.25	2.39,8	35,3	39,0	34,8	34,5	34,1					73.27.36,12			G.
Oct. 13	⊙ N.L. M.....	172.35	1.28,0	24,4	29,7	25,3	24,6	25,8	12,253	-44,40			172.35.41,82			G.
	⊙ S.L.....	173.5	2.47,9	45,9	51,0	47,2	47,0	46,4					173.7.47,42			G.
	Mercury, center...	177.20	2.43,2	42,3	46,6	42,6	41,2	41,4					177.22.42,73			G.
	Arcturus R. M.....	260.30	4.24,0	19,0	22,3	19,9	18,1	20,9	8,860	+26,42			260.34.46,89			G.
	Arcturus.....	144.55	2.34,0	31,8	34,8	30,2	31,2	28,7					144.57.31,65			G.
	(a) Venus N.L.....	180.10	2.33,0	31,8	34,1	31,4	31,3	31,0					180.12.31,97			G.
	β Ursæ Min. R. M.	315.20	2.33,5	27,1	30,0	28,7	25,4	29,8	13,518	-1.10,78			315.21.18,17			G.
	β Ursæ Minoris...	90.10	1.9,4	4,0	9,8	3,8	4,3	2,5					90.11.5,57			G.
	γ Ursæ Maj. R. M.	295.5	3.25,2	18,8	24,5	20,2	17,8	20,5	11,159	-21,56			295.7.59,42			G.
	γ Ursæ Majoris...	110.20	4.26,3	20,3	25,0	20,6	18,0	20,3					110.24.21,52			G.
	Polaris SP. R. M.....	332.0	4.44,0	36,0	45,8	38,9	39,4	40,4	9,908	+4,55			332.4.45,05			G.
Oct. 14	Polaris SP.....	73.25	2.38,4	35,0	38,8	33,8	35,1	34,3					73.27.35,77			G.
	⊙ S.L. M.....	173.30	0.40,0	38,0	41,0	38,9	37,2	37,7	11,517	-29,03			173.30.9,74			G.
	⊙ N.L.....	172.55	3.5,0	4,0	6,1	4,8	1,3	4,0					172.58.4,53			G.
	(b) Mercury, center...	178.0	1.32,5	32,8	33,8	32,3	30,9	31,3					178.1.32,18			G.
	Arcturus R. M.....	260.35	0.22,2	17,4	19,2	18,2	14,9	19,4	11,625	-31,29			260.34.47,42			G.
	Arcturus.....	144.55	2.35,4	33,4	35,8	32,3	32,8	31,7					144.57.33,43			G.
	Venus N.L.....	180.35	2.42,1	41,2	43,3	42,4	40,0	41,1					180.37.41,53			G.
	β Ursæ Min. R. M.	315.20	2.37,4	30,1	34,3	31,4	29,3	33,2	13,707	-1.14,72			315.21.17,76			G.
Oct. 15	β Ursæ Minoris...	90.10	1.6,3	2,0	7,1	2,6	1,3	1,4					90.11.3,38			G.
	(c) ⊙ N.L.....	173.20	0.20,7	16,4	20,8	17,2	15,8	18,0					173.20.18,13			G.
Oct. 19	⊙ S.L.....	173.50	2.29,2	24,3	29,0	24,8	23,3	26,0					173.52.25,97			G.
	(d) ⊙ N.L. M.....	174.45	3.17,9	13,0	17,4	14,2	13,4	14,3	10,648	-10,89			174.48.3,98			G.
	⊙ S.L.....	175.20	0.9,8	8,1	11,8	9,3	6,8	7,2					175.20.8,82			G.

(a) Great motion.

(b) Extremely faint and unsteady.

(c) Misty. N.L. by accident on the fixed wire.

(d) Doubtful. The limbs were fringed by a border of irregular light of 10" breadth by estimation.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
10,07	7.30.59,79	30,442	46,0	43,0	7,95				45.18.16,02	+26,72	ξ Andromeda.
	- 5. 5.55,73				5,37				32.41. 7,18	+25,43	Σ 115.
	17.18.17,14				15,76				55. 5.44,18	+27,30	* R. 1 <sup>b</sup> . 16 <sup>m</sup> . 5 <sup>s</sup> .
	18.51.19,61				20,56				56.38.48,45	+27,17	* R. 1 <sup>b</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> .
	37.40.28,14				46,46				75.28.22,88	+28,19	η Piscium.
	37.29.24,31			42,0					74.57.32,21		).
	37.29.23,94								74.57.31,84		).
	37.29.24,26				46,25	35.59,31		16.12,68	74.57.32,16		).
	37.29.23,52								74.57.31,42		).
	37.29.22,93								74.57.30,83		).
	23.24.12,49				26,11				61.11.46,88	+26,62	α Trianguli.
	29.29.40,89				34,12				67.17.23,29		α Arietis R.
	29.29.40,07				39,23				67.17.22,47	+26,58	α Arietis.
	33. 2.19,19				42,55				70.50. 6,70	+26,50	θ Arietis.
	35.12. 9,55								73. 0. 0,38	+26,18	ψ Arietis.
9,82	59.59. 9,62	30,556	49,3	50,8	1.42,59	7,42			97.31.49,27		⊙.
	59.27. 1,24				1.40,43	7,38		16. 3,80	97.31.49,37		⊙.
	32.11.23,06			51,7	37,35				69.59. 8,69	-13,65	Arcturus R.
	32.11.21,74								69.59. 7,37		Arcturus.
	67. 0.58,15			52,4	2.18,86	5,05	10,613	5,12	104.50.15,18		Venus.
	33. 2.17,00	30,550	44,7	41,4	39,41				70.50. 4,69	+26,58	θ Arietis.
	35.12. 8,30				42,75				72.59.59,33	+26,25	ψ Arietis.
	46. 4. 9,55				1. 2,85				83.52.20,68	+27,25	A.S.C. 268.
	28.15. 5,00				32,57				66. 2.45,85	+25,12	A.S.C. 271.
	5.39.39,17				3,88				41.26.51,33	+21,03	θ Persei.
	32.52.14,00				39,16				70.40. 1,44	+25,45	μ Arietis.
	31.53.34,36								69.26.34,52		).
	31.53.55,37								69.26.35,53		).
	31.53.55,53				37,72	31.24,64		16.18,80	69.26.35,69		).
11,71	31.53.54,82								69.26.34,98		).
	31.53.54,65								69.26.34,81		).
	- 39.18.36,82	30,510	51,0	54,2	48,25				- 1.32.16,79	+22,96	Polaris SP. R.
	39.18.34,36								- 1.32.14,33		Polaris SP.
	59.49.31,34	30,510	51,0	54,3	1.41,06	7,41		16. 4,00	97.54.17,27		⊙.
	60.21.36,94				1.43,25	7,45			97.54.17,02		⊙.
	64.36.32,25	30,504	52,7	55,6	2. 3,23	5,54			102.25.38,22		Mercury.
	32.11.23,59				37,00				69.59. 8,87	-13,85	Arcturus R.
	32.11.21,17								69.59. 6,15		Arcturus.
	67.26.21,49	30,499	52,8	55,7	2.20,47	5,08	9,621	5,30	105.15.50,46		Venus.
	- 22.35. 7,99				24,44				15.11.36,15	-11,12	β Ursae Min. R.
	- 22.35. 4,91								15.11.38,98		β Ursae Minoris.
	- 2.21.48,94	30,310	50,3	51,6	2,43				35.25.16,91	+21,32	γ Ursae Maj. R.
	- 2.21.48,96								35.25.16,89		γ Ursae Majoris.
10,41	- 39.18.34,57	30,296	51,5	55,6	47,78				- 1.32.14,07	+23,36	Polaris SP. R.
	- 39.18.34,71								- 1.32.14,21		Polaris SP.
	60.43.50,26	30,294	52,0	56,7	1.43,57	7,48		16. 4,30	98.16.39,33		⊙.
	60.11.55,55				1.41,36	7,44			98.16.40,05		⊙.
	65.15.21,70	30,280	53,4	57,3	2. 5,50	5,59			103. 4.29,89		Mercury.
	32.11.24,24				36,60				69.59. 8,12	14,05	Arcturus R.
	32.11.24,95								69.59. 7,83		Arcturus.
	67.51.31,04	30,274	54,8	57,2	2.21,92	5,10	9,601	5,51	105.41.16,66		Venus.
	- 22.35. 7,28				24,19				15.11.36,81	-11,46	β Ursae Min. R.
	- 22.35. 7,10								15.11.36,99		β Ursae Minoris.
	60.34. 7,65	30,140	51,2	51,5	1.43,45	7,47		16. 4,60	98.58.56,51		⊙.
	61. 6.15,40				1.45,73	7,51			98.38.57,39		⊙.
	62. 1.53,50	29,600	53,0	52,8	1.47,61	7,59		16. 5,60	100. 6.47,40		⊙.
	62.53.54,34				1.50,06	7,63			100. 6.43,45		⊙.

Coincidence of Micrometer Wire with fixed Wire = 10', 116, 10', 123, 10', 126, 10', 130, 10', 136 at the five wires.

One Micrometer Revolution = 20", 868.

Correction for Runs = 1", 6.

Adopted Zenith Point = 112°. 46'. 10", 48.

Assumed Co-latitude = 37° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.	Correction to Middle Wire.  "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Oct. 19	(a) Mercury, center...	181. 0	4. 12,6	8,4	13,1	8,4	7,3	10,2					181. 4. 9,78	G.
	α Ursæ Maj. R. M.	303. 5	4. 30,8	23,0	28,2	22,9	20,3	24,8	9,845	+ 5,86			303. 9. 30,63	G.
	α Ursæ Majoris...	102. 20	2. 55,8	49,4	56,1	49,8	48,8	48,2					102. 22. 51,20	G.
	δ Leonis R. M....	261. 55	2. 51,2	46,2	51,5	47,0	43,0	46,4	10,668	- 11,30			261. 57. 36,10	G.
	δ Leonis.....	143. 30	4. 47,7	42,0	49,5	41,7	42,7	42,8					143. 34. 44,15	G.
	γ Ursæ Maj. R. M.	295. 5	3. 26,2	20,0	25,4	20,8	17,1	20,8	11,230	- 23,04			295. 7. 58,49	G.
	γ Ursæ Majoris...	110. 20	4. 29,3	22,5	27,3	22,1	20,7	22,5					110. 24. 23,92	G.
Oct. 20	⊙ S.L. M.....	175. 40	2. 28,0	23,2	28,7	24,0	24,4	25,0	12,120	- 41,61			175. 41. 43,81	G.
	⊙ N.L.....	175. 5	4. 38,5	33,3	39,0	34,8	34,5	36,3					175. 9. 35,82	G.
	Arcturus R. M....	260. 30	4. 33,8	27,3	31,8	27,0	26,0	28,8	9,350	+ 16,20			260. 34. 45,08	G.
	Arcturus.....	144. 55	2. 37,5	33,4	38,6	32,2	32,4	32,7					144. 57. 34,33	G.
	Mercury, center...	181. 35	3. 17,8	13,8	18,4	13,9	13,5	13,9					181. 38. 15,05	G.
	(b) Venus S.L.....	183. 0	0. 17,8	12,9	18,3	14,3	12,8	13,2					183. 0. 14,87	G.
	α Lyrae R. M....	279. 10	0. 16,2	11,2	15,1	12,0	6,3	11,3	4,789	+ 1. 51,38			279. 12. 3,38	G.
	α Lyrae.....	126. 20	0. 19,0	14,0	19,5	15,0	13,9	14,8					126. 20. 16,02	G.
	Oct. 22	Regulus R. M....	253. 15	3. 25,1	18,0	23,0	18,1	15,5	20,0	8,939	+ 24,84			253. 18. 44,54
Regulus.....		152. 10	3. 38,8	32,3	40,5	32,5	31,0	34,2					152. 13. 34,62	G.
α Ursæ Maj. R. M.		303. 5	4. 40,2	33,8	39,2	33,7	30,4	35,8	10,368	- 4,99			303. 9. 30,19	G.
α Ursæ Majoris...		102. 20	2. 56,1	49,3	55,8	50,0	48,7	49,9					102. 22. 51,43	G.
δ Leonis R. M....		261. 55	2. 51,8	46,5	51,8	47,0	43,7	46,8	10,719	- 12,31			261. 57. 35,42	G.
δ Leonis.....		143. 30	4. 47,0	41,2	49,5	40,8	40,3	42,9					143. 34. 43,27	G.
γ Ursæ Maj. R. M.		295. 5	3. 27,0	20,2	25,8	21,7	19,0	21,8	11,349	- 25,46			295. 7. 56,87	G.
γ Ursæ Majoris...		110. 20	4. 31,0	23,1	28,6	23,2	21,2	24,3					110. 24. 24,92	G.
Oct. 24	(c) ⊙ S.L. M.....	177. 5	2. 26,7	22,3	26,7	22,5	22,8	24,2	12,830	- 56,37			177. 6. 27,65	G.
	(d) ⊙ N.L.....	176. 30	4. 20,9	16,0	21,6	17,2	15,5	17,8			+3	- 1,03	176. 34. 16,82	G.
Oct. 26	⊙ S.L. M.....	177. 45	3. 27,0	23,8	29,8	22,8	23,8	24,3	12,111	- 41,36			177. 47. 43,64	G.
	⊙ N.L.....	177. 15	0. 34,2	28,2	36,0	32,0	30,5	31,8					177. 15. 32,08	G.
Oct. 30	(e) ⊙ S.L. M.....	179. 5	3. 21,7	22,0	22,3	19,9	16,0	35,1	11,470	- 27,98			179. 7. 54,60	G.
	⊙ N.L.....	178. 35	0. 41,9	43,2	42,9	42,9	37,6	53,9					178. 35. 43,68	G.
	β Ursæ Min. R. M.	315. 20	2. 23,8	17,7	21,9	17,9	15,7	35,0	13,248	- 1. 4,94	+1½	- 1,25	315. 21. 15,63	G.
	β Ursæ Minoris...	90. 10	1. 11,0	5,4	10,9	6,8	6,0	20,8			+1¾	+ 1,70	90. 11. 11,77	G.
	(f) α Andromedæ R. M.	268. 40	4. 34,0	34,0	35,4	34,8	33,1	35,6	3,950	+ 2. 8,95			268. 46. 43,10	G.
	α Andromedæ.....	136. 45	0. 39,8	40,7	42,0	40,4	38,0	40,7					136. 45. 40,22	G.
	δ U. Maj. SP. R. M.	2. 35	1. 15,3	16,9	17,7	19,0	15,3	19,4	11,373	- 25,95			2. 35. 51,22	G.
	δ Ursæ Majoris SP.	42. 55	1. 32,0	34,0	31,8	33,1	31,4	33,8					42. 56. 32,57	G.
	10 Ceti.....	165. 50	3. 30,2	31,8	33,4	31,8	31,7	32,0					165. 53. 51,57	G.
	κ Draco. SP. R. M.	349. 50	2. 16,9	18,0	18,8	19,8	16,5	19,8	10,790	- 13,79			349. 52. 4,34	G.
	κ Draconis SP....	55. 40	0. 18,5	20,3	18,2	19,5	16,9	19,9					55. 40. 18,67	G.
	(g) α Cassiopeie R....	296. 10	3. 23,6	23,2	23,7	23,7	20,1	23,8					296. 13. 22,77	G.
	α Cassiopeie.....	109. 15	4. 2,9	1,9	4,8	2,1	0,2	2,1					109. 19. 2,03	G.
	Nov. 2	(h) Venus S.L.....	187. 5	2. 24,0	23,9	23,1	24,9	24,9	23,9					187. 7. 23,93
ν Capricorni.....		183. 35	3. 1,2	2,8	2,8	2,5	1,3	2,9	9,801	+ 6,85			183. 38. 2,03	G.
α Cygni R. M....		285. 15	1. 27,8	28,0	28,0	29,4	24,9	28,9					285. 16. 54,58	G.
α Cygni.....		120. 15	0. 48,8	46,0	50,1	48,3	44,7	46,4					120. 15. 47,32	G.
(i) δ S.L. M.....		183. 55	3. 48,8	48,3	51,0	49,8	47,8	49,8	10,443	- 6,76	-2	- 6,72	183. 58. 35,49	G.
δ S.L. M.....		...	...	...	...	...	...	...	10,623	- 10,38	-1	- 3,36	183. 58. 35,23	G.
δ S.L. M.....		...	...	...	...	...	...	...	10,770	- 13,37			183. 58. 35,60	G.
δ S.L. M.....		...	...	...	...	...	...	...	10,959	- 17,24	+1	+ 3,36	183. 58. 35,09	G.
δ S.L. M.....		...	...	...	...	...	...	...	11,145	- 21,00	+2	+ 6,72	183. 58. 34,69	G.
(k) α Equulei R. M....		245. 5	4. 33,1	31,2	32,8	32,1	29,2	33,3	8,787	+ 28,00			245. 9. 59,62	G.
α Equulei.....		160. 20	2. 25,8	25,4	26,9	25,1	24,9	27,3					160. 22. 25,72	G.
α Cephei R. M....		302. 25	2. 23,8	23,1	22,9	23,8	20,1	23,1	7,639	+ 51,97			302. 28. 14,59	G.
α Cephei.....		103. 0	4. 10,3	9,3	10,3	9,9	6,1	7,9					103. 4. 8,67	G.
γ Capricorni.....		182. 15	4. 9,9	9,4	11,7	10,3	9,2	10,8					182. 19. 9,92	G.
δ Capricorni.....	181. 45	2. 20,9	20,0	22,7	22,1	18,8	21,9					181. 47. 20,90	G.	

Coincidence at the middle wire and Runs taken, Oct. 30, 0½<sup>h</sup>. (Temp. 50°.)

(a) Cloudy. The planet was seen but for a few seconds. (b) The limb observed and number of micrometer revolutions not being noted in consequence of a casual interruption, are supplied conjecturally. The limbs were nearly equally illuminated. (c) Without the dark glass. (d) Delayed by clouds. Correction for change of N.P.D. = - 0".74. (e) Microscope F has evidently been disarranged: from what cause I cannot say. The change of zenith point was inferred by comparing the readings for this microscope and the means of the microscope readings, for the Sun and β Ursæ Minoris on this day, with similar differences for the Sun on Oct. 26 and for β Ursæ Minoris on Oct. 14. (f) Before this observation the microscopes were adjusted. (g) Accidentally on the fixed wire. (h) Cloudy. (i) Good. (k) Faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	"	"	"	"	" " "	"	"
10,92	68. 17. 59,30	29,600	53,0	53,0	2. 23,07	5,86			106. 7. 24,79		Mercury.
	- 10. 23. 20,15	30,000	48,7	46,8					27. 23. 37,34	- 25,35	$\alpha$ Ursæ Maj. R.
	- 10. 23. 19,28				10,79				27. 23. 38,21		$\alpha$ Ursæ Majoris.
10,13	30. 48. 34,38				35,10				68. 36. 17,76	- 15,24	$\delta$ Leonis R.
	30. 48. 33,67								68. 36. 17,05		$\delta$ Leonis.
11,21	- 2. 21. 48,01				2,43				35. 25. 17,84	- 23,32	$\gamma$ Ursæ Maj. R.
	- 2. 21. 46,56								35. 25. 19,29		$\gamma$ Ursæ Majoris.
9,71	62. 55. 33,33	30,024	51,5	51,6	1. 53,62	7,65		16. 5,90	100. 28. 21,68		$\odot$ .
	62. 23. 25,34				1. 51,08	7,61			100. 28. 22,99		$\odot$ .
	32. 11. 25,40				36,72				69. 59. 10,40	- 15,37	Arcturus R.
	32. 11. 23,85								69. 59. 8,85		Arcturus.
	68. 52. 4,57	30,018	51,8	51,9	2. 53,13	5,92			106. 41. 40,06		Mercury.
9,70	70. 14. 4,39		52,1	52,0	2. 40,74	5,27	10,645	5,45	108. 3. 42,75		Venus.
	13. 34. 7,10	30,026	51,3	49,8	14,14				51. 21. 29,52	+ 11,61	$\alpha$ Lyre R.
	13. 34. 5,54								51. 21. 27,96		$\alpha$ Lyre.
9,58	39. 27. 25,94	29,866	46,3	43,8	48,51				77. 15. 22,73	- 10,16	Regulus R.
	39. 27. 24,14								77. 15. 20,93		Regulus.
10,81	- 10. 23. 19,71				10,81				27. 23. 37,76	- 26,28	$\alpha$ Ursæ Maj. R.
	- 10. 23. 19,05								27. 23. 38,42		$\alpha$ Ursæ Majoris.
9,35	30. 48. 33,06				35,16				68. 36. 18,50	- 15,87	$\delta$ Leonis R.
	30. 48. 32,79								68. 36. 16,23		$\delta$ Leonis.
10,90	- 2. 21. 46,39			46,1	2,42				35. 25. 19,47	- 24,28	$\gamma$ Ursæ Maj. R.
	- 2. 21. 45,56								35. 25. 20,30		$\gamma$ Ursæ Majoris.
	64. 20. 17,17	29,450	47,7	47,5	1. 59,53	7,75		16. 6,90	101. 53. 10,33		$\odot$ .
	63. 48. 6,34				1. 56,74	7,72			101. 53. 10,54		$\odot$ .
	65. 1. 53,16	29,770	45,4	45,2	2. 5,18	7,80		16. 7,40	102. 34. 31,42		$\odot$ .
	64. 29. 21,60				2. 2,21	7,77			102. 34. 31,72		$\odot$ .
13,70	66. 21. 42,08	29,576	47,7	50,2	2. 10,89	7,89		16. 8,50	103. 54. 44,86		$\odot$ .
	65. 49. 31,16				2. 7,67	7,86			103. 54. 47,75		$\odot$ .
	- 22. 35. 3,11				23,97				15. 11. 41,20	- 17,31	$\beta$ Ursæ Min. R.
11,66	- 22. 35. 0,75								15. 11. 43,56		$\beta$ Ursæ Minoris.
	23. 59. 28,70	29,520	47,6	47,0	25,77				61. 47. 2,75	+ 31,67	$\alpha$ Andromeda R.
11,90	23. 59. 28,42								61. 47. 2,47		$\alpha$ Andromeda.
	69. 49. 39,42				2. 36,29				- 32. 5. 7,43	- 27,17	$\delta$ U. Maj. SP. R.
11,51	- 69. 49. 39,23				1. 17,04				32. 5. 7,24	+ 26,93	$\delta$ Ursæ Maj. SP.
	53. 7. 19,77				1. 29,26				90. 55. 45,09	- 28,86	10 Ceti.
12,40	- 57. 5. 32,34								19. 20. 13,52		$\alpha$ Draconis SP. R.
	- 57. 5. 33,13				3,50				- 19. 20. 14,11	+ 33,11	$\alpha$ Draconis SP.
10,93	- 3. 27. 10,97								34. 19. 53,81		$\alpha$ Cassiopeia R.
	- 3. 27. 9,77								34. 19. 55,01		$\alpha$ Cassiopeia.
	74. 21. 12,13	29,494	53,5	54,3	3. 20,52	5,60	10,683	5,80	112. 11. 29,57	+ 6,11	Venus.
	70. 51. 50,23	29,500	50,8	50,0	2. 44,17				108. 41. 42,68	+ 24,93	$\alpha$ Capricorn.
	7. 29. 37,22				7,57				45. 16. 53,07		$\alpha$ Cygn R.
	7. 29. 35,32								45. 16. 51,37		$\alpha$ Cygn.
	71. 12. 23,69								107. 55. 22,10		$\gamma$ .
	71. 12. 23,43								107. 55. 21,84		$\gamma$ .
12,67	71. 12. 23,80				2. 47,30	51. 57,32		14. 59,85	107. 55. 22,21		$\gamma$ .
	71. 12. 23,49								107. 55. 21,70		$\gamma$ .
	71. 12. 21,89								107. 55. 21,30		$\gamma$ .
	47. 36. 12,18				1. 2,91				85. 24. 23,37	+ 17,10	$\alpha$ Equulei R.
11,63	47. 36. 13,92								85. 24. 25,11	+ 30,20	$\alpha$ Equulei.
	- 9. 42. 2,79				9,83				28. 4. 55,56	+ 11,77	$\alpha$ Cephei R.
	- 9. 42. 1,13								28. 4. 53,32		$\alpha$ Cephei.
	69. 32. 58,12			48,8	2. 33,34				107. 22. 39,74	+ 12,54	$\gamma$ Capricorni.
	69. 1. 9,10				2. 29,17				106. 50. 46,55		$\delta$ Capricorn.

Coincidence of Micrometer Wire with fixed Wire - 10', 126 at the middle wire From Oct. 22 - 10', 119, 10', 126, 10', 129, 10', 133, 10', 139 at the five wires.

One Micrometer Revolution = 20", 868

Correction for Buns = - 1", 6 From Oct. 22 = - 2", 2.

Adopted Zenith Point = 112° 46' 10", 48. For the Sun and  $\beta$  Ursæ Minoris Oct. 30 = 112° 46' 12", 52. From  $\alpha$  Andromeda Oct. 30 = 112° 46' 11", 80.

Assumed Co-latitude = 37° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micron. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Nov. 4	$\sigma$ Aquarii.....	176.25	1.29,8	29,1	31,3	31,2	28,2	31,8					176.26.30,12	G.
	$\delta$ S.L. M.....	173.10	3.11,1	10,8	13,0	11,1	9,4	11,1	10,480	-7,53	-2	-8,34	173.12.54,98	G.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	10,725	-12,50	-1	-4,17	173.12.54,18	G.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	10,927	-16,66			173.12.54,19	G.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	11,115	-20,49	+1	+4,17	173.12.54,53	G.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	11,320	-24,65	+2	+8,34	173.12.54,54	G.
	$\epsilon$ Cephei R. M.....	305.50	3.37,8	35,0	38,2	37,8	34,0	37,9	5,228	+1,42,27			305.55.18,79	G.
	$\epsilon$ Cephei.....	99.35	2.7,8	4,9	8,4	7,3	3,3	5,8					99.37.6,10	G.
	$\pi^a$ Piscium.....	165.35	2.42,9	43,0	46,1	43,1	42,8	44,4					165.37.43,52	G.
	$\gamma$ Piscium.....	162.30	2.58,6	57,0	60,7	58,5	56,1	58,2					162.32.57,97	G.
	Uranus.....	170.55	3.6,8	6,1	9,0	7,3	5,4	7,6					170.58.6,80	G.
	(a) $\gamma$ U. Maj. SP. R. M.	5.55	2.19,7	19,2	21,1	20,4	17,3	21,1	15,118	-1,44,11			5.55.35,52	G.
	$\gamma$ Ursæ Majoris SP.	39.35	1.47,3	46,9	47,8	47,3	43,8	47,9			+2	-0,85	39.36.45,85	G.
	$\kappa$ Draco. SP. R. M.	349.50	2.20,2	19,2	21,1	22,5	18,2	22,2	10,834	-14,71			349.52.5,69	G.
	$\kappa$ Draconis SP.....	55.40	0.19,0	18,8	17,0	17,4	14,2	19,0					55.40.17,55	G.
	36 Andromedæ...	142.10	2.22,3	19,7	23,8	20,3	18,8	21,8					142.12.20,95	G.
	$\Sigma$ 115.....	107.40	0.11,0	8,8	11,5	10,8	5,8	8,3					107.40.9,35	G.
	(b) $\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 16 <sup>m</sup> . 5 <sup>s</sup> ...	130.0	4.26,5	23,8	27,2	24,9	23,2	25,1					130.4.25,17	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 17 <sup>m</sup> . 55 <sup>s</sup> ...	108.30	0.43,8	42,8	46,0	44,3	39,8	42,4					108.30.43,13	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> ...	131.35	2.30,3	27,8	31,7	28,0	26,4	28,8					131.37.28,65	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 24 <sup>m</sup> . 39 <sup>s</sup> ...	135.20	4.14,0	10,0	15,9	11,8	10,8	12,5					135.24.12,20	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 27 <sup>m</sup> . 44 <sup>s</sup> ...	132.55	1.9,8	8,0	10,4	9,0	5,9	7,0					132.56.8,27	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 33 <sup>m</sup> . 9 <sup>s</sup> ...	134.35	3.31,2	28,3	31,8	29,7	28,0	30,8					134.38.29,72	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 41 <sup>m</sup> . 20 <sup>s</sup> ...	111.50	4.20,0	16,1	19,8	17,3	15,8	17,8					111.54.17,48	G.
	$\alpha$ Trianguli.....	136.10	0.22,8	20,5	23,1	21,8	19,2	22,0					136.10.21,53	G.
	$\epsilon$ Trianguli.....	135.25	0.15,4	12,6	14,7	13,2	9,1	10,9					135.25.12,30	G.
Nov. 5	$\odot$ S.L. M.....	181.0	1.26,0	26,7	27,1	27,4	24,5	26,6	10,311	-3,84			181.1.22,46	G.
	$\odot$ N.L.....	180.25	4.5,3	6,8	7,7	8,3	4,2	6,5					180.29.6,20	G.
	Mercury, center...	188.30	1.44,1	46,0	45,8	46,2	43,2	43,1					188.31.44,63	G.
	Venus S.L.....	187.50	0.19,8	21,2	20,9	22,3	20,3	21,0					187.50.20,90	G.
Nov. 6	Venus S.L.....	188.0	3.23,3	22,7	24,1	23,6	21,7	24,0					188.3.23,02	G.
Nov. 7	(c) $\delta$ S.L.....	153.50	5.4,8	3,5	7,3	4,9	2,7	5,9			+3	+13,17	153.55.17,70	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 17 <sup>m</sup> . 55 <sup>s</sup> ...	108.30	0.43,5	41,8	44,7	43,8	38,3	41,9					108.30.42,28	G.
	$\eta$ Piscium.....	150.25	1.41,8	41,1	44,7	42,0	38,8	41,8					150.26.41,60	G.
	$\nu$ Andromedæ M.....	124.20	3.41,4	39,0	42,1	41,4	37,2	40,2	14,387	-1,28,89			124.22.11,09	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 27 <sup>m</sup> . 44 <sup>s</sup> ...	132.55	1.8,8	7,9	10,0	9,1	5,8	6,6					132.56.7,97	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 33 <sup>m</sup> . 9 <sup>s</sup> ...	134.35	3.29,8	26,8	30,2	28,2	26,1	29,2					134.38.28,17	G.
	$\star$ $\mathcal{R}$ . 1 <sup>h</sup> . 41 <sup>m</sup> . 20 <sup>s</sup> ...	111.50	4.19,2	15,0	19,1	16,9	13,5	16,8					111.54.16,48	G.
	$\alpha$ Trianguli.....	136.10	0.22,7	20,4	22,9	21,9	17,8	21,8					136.10.21,23	G.
	$\beta$ Arietis.....	144.55	1.36,1	33,2	36,4	34,8	33,2	34,4					144.56.34,58	G.
	$\alpha$ Draco. SP. R. M.	355.20	2.24,0	24,0	26,5	27,0	22,7	26,0	7,469	+55,47			355.23.20,35	G.
	$\alpha$ Draconis SP.....	50.5	4.3,7	2,1	2,7	2,0	0,2	2,6					50.9.1,97	G.
	$\epsilon$ Trianguli.....	135.25	0.11,8	10,8	12,8	11,8	7,9	10,0					135.25.10,83	G.
	$\theta^1$ Arietis.....	145.45	3.31,0	28,1	32,0	29,8	27,0	29,8					145.48.29,40	G.
	$\star$ $\mathcal{R}$ . 2 <sup>h</sup> . 13 <sup>m</sup> . 9 <sup>s</sup> ...	145.10	2.50,5	49,3	53,0	50,5	48,2	49,3					145.12.49,95	G.
	A.S.C. 268. M.....	158.50	2.11,0	9,0	13,1	11,1	8,3	11,3	15,110	-1,43,98			158.50.26,52	G.
	(d) 30 Arietis.....	141.0	1.14,8	12,7	15,9	13,5	10,2	12,5					141.1.13,18	G.
	$\theta$ Persei M.....	116.25	1.28,1	25,0	27,7	26,2	20,9	24,8	12,066	-40,47			116.25.44,90	G.
	$\mu$ Arietis.....	145.35	3.27,4	26,0	28,8	25,5	25,1	27,3					145.38.26,47	G.
	$\pi$ Ceti.....	179.25	3.47,7	47,0	49,3	48,0	45,8	47,2					179.28.47,27	G.
	$\eta$ Persei.....	109.45	0.8,0	6,4	9,0	8,5	1,6	5,3					109.45.6,47	G.
	$\Sigma$ 314.....	112.35	3.37,5	34,1	38,0	35,4	32,2	35,0					112.38.35,13	G.
	$\beta$ Persei R. M.....	280.50	3.20,3	19,6	20,4	21,2	15,9	20,8	8,169	+40,86			280.54.0,36	G.
	$\beta$ Persei.....	124.35	3.26,3	23,3	27,2	24,5	22,1	24,2					124.38.24,38	G.
	$\delta$ Arietis.....	145.50	0.59,8	57,0	61,0	58,8	55,2	58,2					145.50.58,27	G.
	$\alpha$ Persei R. M.....	289.50	1.25,8	24,3	25,4	26,8	20,0	24,8	11,573	-30,18			289.50.54,25	G.
	$\alpha$ Persei.....	115.40	1.31,2	28,9	31,2	31,0	25,8	29,4					115.41.29,48	G.
	$g$ Arietis.....	140.45	3.62,2	58,0	63,8	60,2	56,4	59,5					140.48.59,77	G.

Coincidence at the middle wire and Runs taken Nov. 9, 2<sup>h</sup>. (Temp. 51<sup>o</sup>.5.)

(a) Very unsteady.

(b) Preceding division bisected.

(c) Hurried.

(d) The preceding star.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer (for opposite Limb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1849.	NAME OF STAR or PLANET.				
			Attach.	Free.											
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"				
12,45	63.40.18,32	29,272	48,0	47,2	1.55,45	49. 0,64		15.24,56	101.29.22,05	+17,72	$\sigma$ Aquarii.				
	60.26.43,18								97.11. 7,13		$\delta$ .				
	60.26.42,38								97.11. 6,33		$\delta$ .				
	60.26.42,39				1.40,87				97.11. 6,34		$\delta$ .				
	60.26.42,73								97.11. 6,68		$\delta$ .				
	60.26.42,74								97.11. 6,69		$\delta$ .				
	-13. 9. 6,99				13,41				24.37.47,88	+35,33	$\epsilon$ Cephei R.				
	-13. 9. 5,70								24.37.49,17		$\epsilon$ Cephei.				
	52.51.31,72				46,8				1.15,70	90.39.55,70	+23,13	$\alpha$ Piscium.			
	49.46.46,17								1. 7,83	87.35. 2,28	+24,92	$\gamma$ Piscium.			
10,69	58.11.55,00	29,288	47,3	46,0	1.32,38	0,37			96. 0.35,29		Uranus.				
	-73. 9.23,72				3. 7,81				-35.25.23,25	-28,35	$\gamma$ U. Maj. SP. R.				
11,62	-73. 9.25,95	29,130	51,3	52,1		8,02		16.10,00	-35.25.25,48		$\gamma$ Ursæ Maj. SP.				
	-57. 5.53,89				1.28,75				-19.20.14,36	-30,67	$\alpha$ Draconis SP. R.				
	-57. 5.54,25								-19.20.14,72		$\alpha$ Draconis SP.				
	29.26. 9,15				32,48				67.13.49,91	+31,20	$\beta$ Andromedæ.				
	-5. 6. 2,45				5,14				32.41. 0,69	+32,40	$\Sigma$ 115.				
	17.18.13,37				17,94				55. 5.39,59	+31,58	* R. 1 <sup>h</sup> . 16 <sup>m</sup> . 5 <sup>s</sup> .				
	-4.15.28,67				4,29				33.31.35,32	+32,10	* R. 1 <sup>h</sup> . 17 <sup>m</sup> . 55 <sup>s</sup> .				
	18.51.16,85				19,66				56.38.44,79	+31,23	* R. 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> .				
	22.38. 0,40				24,01				60.25.32,69	+30,85	* R. 1 <sup>h</sup> . 24 <sup>m</sup> . 39 <sup>s</sup> .				
	20. 9.56,47				21,14				57.57.25,89	+30,89	* R. 1 <sup>h</sup> . 27 <sup>m</sup> . 44 <sup>s</sup> .				
11,16	21.52.17,92	29,148	52,7	53,0	23,11	5,70	10,652	5,49	59.39.40,31	+30,54	* R. 1 <sup>h</sup> . 33 <sup>m</sup> . 9 <sup>s</sup> .				
	-0.51.54,32				0,87				36.55.13,09	+30,53	* R. 1 <sup>h</sup> . 41 <sup>m</sup> . 20 <sup>s</sup> .				
	23.24. 9,73				24,92				61.11.42,93	+29,99	$\alpha$ Trianguli.				
	22.39. 0,50				24,03				60.26.32,81	+29,00	$\epsilon$ Trianguli.				
	68.15.10,66				2.20,73				105.48.21,65		$\odot$ .				
	67.42.54,40				2.17,04				105.48.21,73		$\odot$ .				
	75.45.32,83				3.38,61				113.36.12,40		Mercury.				
	75. 4. 9,10				3.28,41				112.54.34,64		Venus.				
	75.17.11,22				3.30,67				113. 7.39,14		Venus.				
	41. 9. 5,90				50,04				78. 2. 4,12		$\delta$ .				
11,37	-4.15.29,52	29,116	46,8	45,5	4,27	38.49,90		16.10,20	33.31.34,49	+32,87	* R. 1 <sup>h</sup> . 17 <sup>m</sup> . 55 <sup>s</sup> .				
	37.40.29,80				44,22				75.28.22,30	+29,66	$\eta$ Piscium.				
	11.35.59,29				11,76				49.23.19,33	+31,87	$\nu$ Andromedæ.				
	20. 9.56,17				21,04				57.57.25,49	+31,28	* R. 1 <sup>h</sup> . 27 <sup>m</sup> . 44 <sup>s</sup> .				
	21.52.16,57				23,00				59.39.47,65	+30,92	* R. 1 <sup>h</sup> . 33 <sup>m</sup> . 9 <sup>s</sup> .				
	-0.51.55,32				0,86				36.55.12,10	+31,27	* R. 1 <sup>h</sup> . 41 <sup>m</sup> . 20 <sup>s</sup> .				
	23.24. 9,43				24,80				61.11.42,51	+30,33	$\alpha$ Trianguli.				
	32.10.22,78				36,03				69.58. 7,09	+29,57	$\beta$ Arietis.				
	-62.37. 8,55				46,3				44,9				-24.51.50,55	-24,74	$\alpha$ Draconis SP. R.
	-62.37. 9,83								1.50,28	-24.51.51,83		$\alpha$ Draconis SP.			
11,37	22.38.59,03	29,126	45,7	44,0	23,94				60.26.31,25	+29,34	$\epsilon$ Trianguli.				
	33. 2.17,60				37,30				70.50. 3,18	+28,52	$\theta$ Arietis.				
	32.26.38,15				36,46				70.14.22,89	+28,33	* R. 2 <sup>h</sup> . 13 <sup>m</sup> . 9 <sup>s</sup> .				
	46. 4.14,72				59,47				83.52.22,47	+27,00	A.S.C. 268.				
	28.13. 1,38				30,82				66. 2.40,48	+27,68	$\beta$ Arietis.				
	3.39.33,10				3,67				41.26.45,05	+27,09	$\delta$ Persei.				
	32.52.14,67				37,06				70.40. 0,01	+27,25	$\mu$ Arietis.				
	66.42.55,37				2.12,73				104.31.56,48	+25,36	* Ceti.				
	-3. 1. 5,33				3,03				34.45.59,92	+26,23	$\eta$ Persei.				
	-0. 7.36,67				0,13				37.39.31,48	+26,04	$\Sigma$ 314.				
11,37	11.52.11,44	29,126	45,7	44,0	12,09	2,93			49.39.31,81	+25,09	$\beta$ Persei R.				
	11.52.12,56				37,44				49.39.32,95		$\beta$ Persei.				
11,37	33. 4.46,47	29,126	45,7	44,0	37,44	2,93			70.52.32,19	+25,37	$\delta$ Arietis.				
	2.55.17,55				2,93				40.42.28,76	+22,00	$\alpha$ Persei R.				
	2.55.17,68								40.42.28,89		$\alpha$ Persei.				
	28. 2.47,97				30,62				65.50.26,87	+24,30	$\gamma$ Arietis.				

Coincidence of Micrometer Wire with fixed Wire = 10",129, at the middle wire. From Nov. 5 = 10",127.

One Micrometer Revolution = 20",868.

Correction for Run = 2",2. From Nov. 5 = -1",9

Adopted Zenith Point = 118° 46', 11",40.

Assumed Co-latitude = 57°. 47'. 8".28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			° ' "	° ' "	° ' "	° ' "	° ' "	° ' "					° ' "	
Nov. 8	$\beta$ Arietis.....	144.55	1.34,4	32,8	34,9	34,0	31,7	33,0					144.56.33,86	G.
	(a) $\delta$ S.L. M.....	147.50	3.32,5	28,4	33,7	31,2	28,4	31,8	10,488	-7,53	+3	+0,49	147.53.23,25	G.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	10,706	-11,99	+1	+3,98	147.53.22,77	G.
	$\delta$ S.L. M.....	...	...	...	...	...	...	...	10,917	-16,28	+2	+7,96	147.53.22,46	G.
	A.S.C. 268.....	158.50	0.26,8	25,1	28,2	27,7	24,0	28,1					158.50.26,62	G.
	$\nu$ Arietis.....	143.40	2.4,1	2,9	7,7	4,4	2,0	3,5					143.42.3,97	G.
	$\pi$ Ceti.....	179.25	3.48,1	48,0	52,2	50,0	48,1	48,8					179.28.48,97	G.
	$\eta$ Persei.....	109.40	5.9,2	5,8	10,1	7,8	3,4	6,8					109.45.6,87	G.
	$\Sigma$ 314.....	112.35	3.36,4	33,2	37,1	34,7	31,2	34,5					112.38.34,28	G.
	$\epsilon$ Arietis.....	144.15	1.16,0	15,4	17,6	15,8	12,3	15,2					144.16.15,30	G.
	$\beta$ Persei R. M.....	280.50	3.27,0	26,5	28,8	28,9	23,1	28,4	8,468	+34,62			280.54.1,52	G.
	$\beta$ Persei.....	124.35	3.25,1	22,2	26,2	23,9	21,8	23,0					124.38.23,48	G.
	$\zeta$ Arietis.....	145.50	0.60,2	56,9	62,1	59,4	56,0	59,3					145.50.58,92	G.
	$\alpha$ Persei R. M.....	289.50	1.29,8	28,4	29,4	31,2	23,9	28,7	11,768	-34,24			289.50.54,23	G.
	$\alpha$ Persei.....	115.40	1.30,9	28,0	31,8	31,0	25,0	28,7					115.41.29,13	G.
	$g$ Arietis.....	140.45	3.60,7	56,7	62,4	57,9	55,5	58,7					140.48.58,40	G.
Nov. 9	$\odot$ N.L. M.....	181.35	4.12,8	10,0	13,0	12,1	9,9	14,3	9,358	+16,05			181.39.27,80	G.
	$\odot$ S.L.....	182.10	1.44,7	43,4	46,0	45,4	42,0	43,3					182.11.44,02	G.
	Venus S.L.....	188.35	3.24,0	23,0	24,0	25,1	21,8	23,2					188.38.23,30	G.
	$\alpha$ Lyrae R. M.....	279.5	4.38,8	36,4	37,3	38,3	34,0	36,8	3,168	+2,25,22			279.12.1,87	G.
	$\alpha$ Lyrae.....	126.20	0.22,2	23,2	22,1	23,0	20,4	21,0					126.20.21,97	G.
	$\chi^3$ Capricorni.....	186.5	2.26,4	24,4	25,3	25,8	23,8	25,3					186.7.25,02	G.
	$\alpha$ Cephei R. M.....	302.25	2.26,0	23,8	26,4	26,0	21,1	24,0	7,689	+50,89			302.28.15,29	G.
	$\alpha$ Cephei.....	103.0	4.11,8	8,9	10,6	9,8	5,5	7,5					103.4.8,75	G.
	$\gamma$ Capricorni.....	182.15	4.13,5	10,7	14,8	13,4	11,0	12,8					182.19.12,43	G.
	$\zeta$ Capricorni.....	181.45	2.23,7	21,5	23,8	23,8	21,2	23,7					181.47.22,80	G.
	$\sigma$ Aquarii.....	176.25	1.30,8	27,6	30,5	31,0	28,0	30,8					176.26.29,68	G.
	$\theta$ Persei.....	116.25	0.46,7	42,5	45,9	44,3	39,8	43,0					116.25.43,65	G.
	$\eta$ Persei.....	109.45	0.8,1	5,4	8,0	7,2	2,8	4,9					109.45.6,07	G.
	$\Sigma$ 314.....	112.35	3.37,8	32,1	37,1	34,4	32,4	33,9					112.38.34,40	G.
	$\epsilon$ Arietis.....	144.15	1.18,2	14,8	18,1	15,9	13,5	16,4					144.16.16,07	G.
	$\zeta$ Arietis.....	140.20	0.30,3	26,0	29,8	28,8	24,7	27,6					140.20.27,83	G.
	A.S.C. 340.....	115.55	3.52,2	48,2	52,4	50,0	45,5	48,3					115.58.49,20	G.
	(b) $\delta$ N.L. M.....	142.15	3.7,1	3,8	9,1	5,0	5,2	4,3	9,310	+16,84	-2	-6,28	142.18.16,11	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	9,480	+13,43	-1	-3,14	142.18.15,84	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	9,617	+10,64			142.18.16,19	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	9,820	+6,49	+1	+3,14	142.18.15,18	G.
	$\delta$ N.L. M.....	...	...	...	...	...	...	...	9,952	+3,86	+2	+6,28	142.18.15,69	G.
	$b$ Pleiadum.....	141.20	1.54,0	51,2	55,3	52,3	51,4	51,8					141.21.52,55	G.
	(c) $\eta$ Tauri.....	...	...	...	...	...	...	...					141.21.52,55	G.
	$f$ Pleiadum M.....	...	...	...	...	...	...	...	2,141	+2,46,74	+1	+0,07	141.24.39,36	G.
	$h$ Pleiadum M.....	...	...	...	...	...	...	...	16,549	-2,14,02			141.19.38,53	G.
	$\Lambda^1$ Tauri.....	143.15	4.50,9	46,9	52,9	48,4	49,0	49,0					143.19.49,22	G.
	Polaris SP. R. M.....	332.0	4.52,2	50,8	54,0	54,0	49,8	52,5	10,768	-13,37			332.4.38,53	G.
	Polaris SP.....	73.25	2.47,7	44,9	47,7	45,8	43,2	45,6					73.27.45,65	G.
Nov. 10	* $\mathcal{R}$ . 1 <sup>h</sup> . 16 <sup>m</sup> . 5 <sup>s</sup> ...	130.0	4.27,1	21,4	28,0	23,1	20,6	24,7					130.4.23,87	G.
	(d) * $\mathcal{R}$ . 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> . M.	131.35	4.10,4	4,9	11,8	7,1	3,5	7,3	14,917	-1,39,96			131.37.27,27	G.
	* $\mathcal{R}$ . 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> ...	108.35	1.32,8	27,3	32,8	30,2	25,2	29,7			+2	+0,90	108.36.30,47	G.
	* $\mathcal{R}$ . 1 <sup>h</sup> . 24 <sup>m</sup> . 39 <sup>s</sup> ...	135.20	4.12,7	9,0	15,0	9,7	7,5	9,6			+3	+0,77	135.24.11,09	G.
	$\nu$ Andromedæ.....	124.20	2.13,2	8,0	13,0	10,3	6,3	8,8					124.22.9,80	G.
	$\epsilon$ Cassiopeie R. M.....	303.25	2.16,3	12,1	16,3	15,9	9,7	14,7	12,587	-51,34			303.26.22,69	G.
	$\epsilon$ Cassiopeie.....	102.5	0.63,2	59,6	63,5	61,4	57,9	60,6					102.6.0,97	G.
	$\alpha$ Draco. SP. R. M.....	355.20	1.13,0	10,2	15,0	14,8	10,3	13,5	3,940	+2.9,12			355.23.21,84	G.
	$\alpha$ Draconis SP.....	50.5	3.64,3	60,8	62,9	61,8	59,2	63,7					50.9.1,87	G.
	* $\mathcal{R}$ . 2 <sup>h</sup> . 13 <sup>m</sup> . 9 <sup>s</sup> ...	145.10	2.51,0	48,4	52,8	49,3	47,2	49,4					145.12.49,50	G.
	$\mu$ Arietis.....	145.35	3.27,9	24,0	29,3	25,1	24,7	27,5					145.38.26,20	G.
	$\pi$ Arietis.....	148.10	0.15,6	12,8	17,6	14,5	11,0	14,0					148.10.14,23	G.
	$\beta$ U. Min. SP. R. M.....	345.40	2.26,3	23,1	26,5	27,8	22,4	27,8	6,023	+1,25,64			345.43.51,14	G.
	$\beta$ Ursæ Minoris SP.....	59.45	3.35,2	30,9	32,8	32,4	30,2	34,0					59.48.32,37	G.

(a) Fully illumined.  
(b) Very much clouded.

(c)  $\eta$  Tauri has precisely the same N.P.D. as  $b$  Pleiadum.  
See Nov. 10 and 14.  
(d) With micrometer on account of the next star.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
12,50	32. 10. 22,06	29,242	47,2	45,3	36,20	34. 21,05		16. 22,64	69. 58. 6,54	+ 29,65	$\beta$ Arietis.
	33. 7. 11,45								72. 4. 16,51		$\gamma$ .
	33. 7. 10,97				40,47				72. 4. 16,03		$\delta$ .
	35. 7. 10,66								72. 4. 15,72		$\epsilon$ .
	46. 4. 14,82				59,72				83. 52. 22,82	+ 26,97	A.S.C. 268.
	30. 55. 52,17				34,51				68. 43. 31,96	+ 27,57	$\nu$ Arietis.
	66. 42. 37,17				2. 12,98				101. 31. 58,13	+ 25,21	$\pi$ Ceti.
	- 3. 1. 4,93				3,04				34. 46. 0,31	+ 26,50	$\eta$ Persei.
	- 0. 7. 37,52				0,13				37. 39. 30,63	+ 26,28	$\Sigma$ 314.
	31. 30. 3,50				35,33				69. 17. 47,11	+ 26,26	$\epsilon$ Arietis.
	11. 52. 10,28								49. 39. 30,68		$\beta$ Persei R.
	11. 52. 11,68				12,12				49. 39. 32,08	+ 25,26	$\beta$ Persei.
	33. 4. 47,12				37,55				70. 52. 32,95	+ 25,12	$\delta$ Arietis.
	2. 55. 17,57				2,94				40. 42. 28,79	+ 23,11	$\alpha$ Persei R.
11,68	2. 55. 17,33								40. 42. 28,55		$\alpha$ Persei.
	28. 2. 46,60				30,72				65. 50. 25,60	+ 24,36	$g$ Arietis.
11,92	68. 53. 16,00	28,974	49,0	49,5	2. 25,32	8,06	10,667	16. 10,90	106. 58. 52,44		$\odot$ .
	69. 25. 32,22				2. 29,41				106. 58. 50,92		$\odot$ .
	75. 52. 11,50				3. 39,95				113. 42. 48,31		Venus.
	13. 34. 9,93				51,2				51. 21. 31,86		$\alpha$ Lyrae R.
12,02	13. 34. 10,17	29,018	51,0	50,4	13,65	5,78		16. 31,17	51. 21. 32,10	+ 8,94	$\alpha$ Lyrae.
	73. 21. 13,22				3. 8,50				111. 11. 30,00	+ 7,53	$\chi^2$ Capricorni.
	- 9. 42. 3,40	29,050	47,6	46,2	9,76				28. 4. 55,03	+ 30,58	$\alpha$ Cephei R.
	- 9. 42. 3,05								28. 4. 55,17		$\alpha$ Cephei.
	69. 33. 0,63	29,072	46,5	45,2	2. 31,95				107. 22. 40,86	+ 11,41	$\gamma$ Capricorni.
	69. 1. 11,00				2. 27,83				106. 50. 47,11	+ 12,17	$\delta$ Capricorni.
	63. 40. 17,88	29,058	45,0	43,3	1. 55,14				101. 29. 21,30	+ 17,41	$\sigma$ Aquarii.
	3. 39. 31,85				3,67				41. 26. 43,80	+ 27,52	$\theta$ Persei.
	- 3. 1. 5,73	29,050	44,8	44,0	3,03				34. 45. 59,52	+ 26,74	$\eta$ Persei.
	- 0. 7. 37,40				0,13				37. 39. 30,75	+ 26,51	$\Sigma$ 314.
	31. 30. 1,27				35,19				69. 17. 47,74	+ 26,30	$\epsilon$ Arietis.
	27. 34. 16,03				29,99				65. 21. 54,30	+ 25,90	$\delta$ Arietis.
	3. 12. 37,40				3,22				40. 59. 48,90	+ 25,10	A.S.C. 340.
	29. 32. 4,31								67. 6. 36,89		$\nu$ .
	29. 32. 4,01								67. 6. 36,62		$\nu$ .
	29. 32. 4,39				32,48				67. 6. 36,97		$\nu$ .
	29. 32. 3,38								67. 6. 35,96		$\nu$ .
	29. 32. 3,89								67. 6. 36,17		$\nu$ .
	28. 33. 40,75				31,25				66. 23. 20,28	+ 22,71	$b$ Pleiadum.
	28. 33. 40,75				31,25				66. 23. 20,28	+ 22,39	$\eta$ Tauri.
12,09	28. 38. 27,66				31,31				66. 26. 7,15	+ 22,33	$f$ Pleiadum.
	28. 38. 26,73				31,20				66. 21. 6,21	+ 22,33	$h$ Pleiadum.
	30. 33. 37,12				33,85				68. 21. 19,35	+ 21,04	$\Delta^1$ Tauri.
	- 39. 18. 26,73	28,976	46,1	45,4	46,66				- 1. 32. 5,11	+ 33,36	Polaris SP. R.
	- 39. 18. 26,15								- 1. 32. 4,53		Polaris SP.
	17. 18. 12,07	29,176	44,9	42,5	18,00				55. 5. 38,35	+ 32,44	$\star$ Al. 1 <sup>h</sup> . 16 <sup>m</sup> . 5 <sup>s</sup> .
	18. 51. 15,47				19,73				56. 38. 43,48	+ 32,05	$\star$ Al. 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> .
	- 4. 9. 41,33				4,20				33. 37. 22,75	+ 33,37	$\star$ Al. 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> .
	22. 37. 50,29				24,09				60. 25. 31,66	+ 31,55	$\star$ Al. 1 <sup>h</sup> . 24 <sup>m</sup> . 39 <sup>s</sup> .
	11. 35. 58,00				11,86				49. 23. 18,14	+ 32,41	$\nu$ Andromedae.
	- 10. 40. 10,89								27. 6. 46,51		$\epsilon$ Cassiopeiae R.
	- 10. 40. 10,83				10,88				27. 6. 46,57	+ 31,92	$\epsilon$ Cassiopeiae.
	- 62. 37. 10,04								24. 51. 52,84		$\alpha$ Draco. SP. R.
	- 62. 37. 9,03				1. 51,08				24. 51. 52,73	- 25,89	$\alpha$ Draconis SP.
	32. 26. 37,70				36,71				70. 14. 22,69	+ 28,49	$\star$ Al. 2 <sup>h</sup> . 13 <sup>m</sup> . 9 <sup>s</sup> .
	32. 52. 14,40				37,33				70. 40. 0,03	+ 27,39	$\mu$ Arietis.
	35. 24. 2,13				41,07				73. 11. 51,78	+ 26,88	$\nu$ Arietis.
	- 32. 57. 39,34				1. 16,47				15. 11. 47,53		$\beta$ U. Min. SP. R.
	- 51. 57. 39,43								15. 11. 47,62	- 21,54	$\beta$ Ursa Min. SP.

Coincidence of Micrometer Wire with fixed Wire = 10', 117, 10', 124, 10', 127, 10', 131, 10', 137 at the five wires.

One Micrometer Revolution = 20", 80, 8.

Correction for Lens = - 1", 0.

Adopted Zenith Point = 11° 46' 11", 80.

Assumed Co-latitude = 37° 47' 8", 28

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.  " "			Observer.
			A	B	C	D	E	F								
			" "	" "	" "	" "	" "	" "								
Nov. 10	52 Arietis .....	140. 20	0. 30,0	25,2	29,0	27,3	23,5	27,7	11,107	- 20,45			140. 20. 27,08			G.
	A.S.C. 340. ....	115. 55	3. 52,8	49,0	53,2	50,0	45,9	48,7					115. 58. 49,68			G.
	$\alpha$ Persei R. M. ....	289. 50	1. 18,0	16,0	17,2	17,7	10,5	15,5					289. 50. 55,28			G.
	$\alpha$ Persei .....	115. 40	1. 31,0	27,7	30,3	29,9	24,3	27,6					115. 41. 28,37			G.
	$b$ Pleiadum .....	141. 20	1. 54,3	51,8	54,8	51,9	50,9	51,7	2,164	+ 2. 46,26	+1	+ 0,07	141. 21. 52,45			G.
	(a) $\eta$ Tauri .....	...	...	...	...	...	...	...					141. 21. 52,45			G.
	$f$ Pleiadum M. ....	...	...	...	...	...	...	...					141. 24. 38,78			G.
	$h$ Pleiadum M. ....	...	...	...	...	...	...	...					141. 19. 38,32			G.
	A <sup>1</sup> Tauri .....	143. 15	4. 49,1	46,0	52,5	47,4	46,1	48,8	16,554	- 2. 14,13			143. 19. 48,02			G.
	$\delta$ N.L. M. ....	138. 50	2. 18,7	14,8	19,2	15,9	13,1	16,9					138. 52. 23,66			G.
	$\delta$ N.L. M. ....	...	...	...	...	...	...	...					138. 52. 22,48			G.
	$\delta$ N.L. M. ....	...	...	...	...	...	...	...					138. 52. 22,60			G.
	$\delta$ N.L. M. ....	...	...	...	...	...	...	...					138. 52. 22,55			G.
	$\delta$ N.L. M. ....	...	...	...	...	...	...	...					138. 52. 22,39			G.
	Arcturus R. M. ....	260. 30	3. 39,7	37,6	38,9	39,4	36,0	38,8	7,031	+ 1. 4,61	+2	+ 3,62	260. 34. 42,78			G.
	Arcturus .....	144. 55	2. 43,2	40,8	43,8	41,4	38,8	40,4					144. 57. 41,23			G.
Nov. 11	$\odot$ N.L. M. ....	182. 10	3. 33,2	30,8	32,4	32,0	29,7	32,0	11,857	- 36,11			182. 12. 55,36			G.
	$\odot$ S.L. ....	182. 45	0. 13,3	14,0	14,0	15,0	11,9	13,0					182. 45. 13,52			G.
Nov. 12	Venus S.L. ....	189. 5	2. 7,2	5,3	7,4	8,2	3,4	5,9	8,058	+ 43,26	+1	- 0,12	189. 7. 6,10			G.
	$\alpha$ Lyrae R. M. ....	279. 10	1. 22,0	19,8	19,8	21,1	15,3	19,0					279. 12. 2,56			G.
	$\alpha$ Lyrae .....	126. 20	0. 21,7	22,0	22,4	22,2	18,9	19,9					126. 20. 21,65			G.
	$\beta$ Lyrae R. M. ....	273. 45	0. 25,2	25,0	25,0	26,4	19,9	24,5	12,100	- 41,09	+1	- 0,10	273. 44. 43,13			G.
	$\beta$ Lyrae .....	131. 45	2. 42,7	42,0	45,4	43,8	40,9	42,0					131. 47. 43,03			G.
Nov. 14	$\epsilon$ Arietis .....	144. 15	1. 16,6	15,0	17,0	14,5	13,2	15,0	11,468	- 27,98	+3	+ 0,51	144. 16. 15,64			G.
	52 Arietis .....	140. 20	0. 28,8	25,8	28,4	27,2	25,0	27,7					140. 20. 27,12			G.
	A.S.C. 340. ....	115. 55	3. 50,6	47,5	50,8	48,1	45,1	46,3					115. 58. 47,83			G.
	$\alpha$ Persei R. M. ....	289. 50	1. 25,7	24,1	25,4	25,9	20,4	23,3					289. 50. 56,07			G.
	$\alpha$ Persei .....	115. 40	1. 28,8	26,2	28,4	28,0	23,6	26,8					115. 41. 26,87			G.
	$b$ Pleiadum .....	141. 20	1. 53,8	50,3	54,8	50,9	50,3	50,7	2,168	+ 2. 46,17	+1	+ 0,07	141. 21. 51,68			G.
	(a) $\eta$ Tauri .....	...	...	...	...	...	...	...					141. 21. 51,68			G.
	$f$ Pleiadum M. ....	...	...	...	...	...	...	...					141. 24. 37,92			G.
	$h$ Pleiadum M. ....	...	...	...	...	...	...	...					141. 19. 37,47			G.
	Venus S.L. ....	189. 35	0. 37,8	37,6	35,4	38,9	36,5	37,8	10,528	- 8,60	-2	+ 8,52	189. 35. 37,30			G.
	$\delta$ S.L. M. ....	157. 45	4. 32,1	28,1	32,1	30,4	29,2	32,3					157. 49. 30,37			G.
	$\delta$ S.L. M. ....	...	...	...	...	...	...	...					157. 49. 30,52			G.
	(b) $\delta$ S.L. ....	...	...	...	...	...	...	...					157. 49. 30,45			G.
	$\delta$ S.L. M. ....	...	...	...	...	...	...	...					157. 49. 30,36			G.
Nov. 16	$\delta$ S.L. M. ....	...	...	...	...	...	...	...	9,930	+ 4,17	+1	- 4,26	157. 49. 30,62			G.
	$\delta$ S.L. M. ....	...	...	...	...	...	...	...					157. 49. 30,62			G.
	$\alpha$ Ursae Maj. R. M. ....	303. 5	4. 38,0	35,1	37,7	36,1	33,6	37,1					303. 9. 23,82			G.
	$\alpha$ Ursae Majoris ...	102. 20	2. 63,2	59,8	61,9	59,6	58,2	59,2					102. 23. 0,15			G.
	$\chi$ Leonis .....	156. 45	1. 25,0	23,8	25,4	24,7	23,0	25,4					156. 46. 24,47			G.
	$p^4$ Leonis .....	164. 10	0. 4,0	4,0	6,0	5,3	2,2	4,9	9,720	+ 8,69	+2	- 8,52	164. 10. 4,40			G.
	$q$ Leonis .....	162. 0	4. 50,2	49,0	53,1	49,7	48,6	49,8					162. 4. 49,80			G.
	$\lambda$ Draconis R. M. ....	310. 40	4. 37,1	33,8	36,0	35,8	33,1	35,6					310. 45. 14,47			G.
	$\lambda$ Draconis .....	94. 45	2. 11,5	7,5	9,9	10,0	5,9	8,2					94. 47. 8,72			G.
	(c) $\ast$ R. 1 <sup>h</sup> . 24 <sup>m</sup> . 16 <sup>s</sup> ..	152. 35	2. 34,3	32,2	35,8	33,7	29,8	34,8	10,710	- 12,18			152. 37. 33,28			G.
	$\nu$ Andromedae. ....	124. 20	2. 10,9	8,1	12,2	8,4	4,9	7,5					124. 22. 8,55			G.
	$\alpha$ Arietis R. M. ....	263. 15	1. 31,5	30,2	32,2	30,9	25,9	30,8					263. 16. 34,61			G.
	$\alpha$ Arietis .....	142. 15	0. 50,8	48,8	53,9	50,2	47,4	49,1					142. 15. 49,98			G.
	$\ast$ R. 2 <sup>h</sup> . 13 <sup>m</sup> . 9 <sup>s</sup> ..	145. 10	2. 49,3	45,9	52,2	47,3	45,4	46,8					145. 12. 47,65			G.
Nov. 19	$\pi$ Arietis .....	148. 10	0. 14,0	10,9	16,7	12,4	9,0	11,7	12,234	- 44,00			148. 10. 12,43			G.
	Arcturus R. M. ....	260. 35	0. 28,8	25,2	28,3	27,2	23,6	26,2					260. 34. 42,52			G.
	Arcturus .....	144. 55	2. 43,9	42,0	47,0	43,1	40,8	42,7					144. 57. 43,10			G.
	$\epsilon$ Bootis R. M. ....	268. 15	3. 27,8	24,9	27,9	25,9	22,1	25,8					268. 18. 34,77			G.
	$\epsilon$ Bootis .....	137. 10	3. 50,8	47,9	52,7	48,3	47,5	47,9					137. 13. 48,97			G.
	$\beta$ Ursae Min. R. M. ....	315. 20	2. 27,3	24,5	26,7	26,0	23,0	24,9	13,977	- 1. 20,35			315. 21. 4,92			G.
	$\beta$ Ursae Minoris ...	90. 10	1. 24,0	18,4	23,7	19,7	18,7	19,6					90. 11. 20,62			G.
	$\epsilon$ Bootis .....	...	...	...	...	...	...	...					...			
	$\epsilon$ Bootis .....	...	...	...	...	...	...	...					...			
	$\epsilon$ Bootis .....	...	...	...	...	...	...	...					...			
	$\epsilon$ Bootis .....	...	...	...	...	...	...	...					...			

Coincidence at the middle wire and Runs taken Nov. 20, 2<sup>h</sup>. (Temp. 43° 5.)

(a) Well bisected by the fixed wire.

(b) Accidentally on the fixed wire.

(c) No star very near this.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
11,83	27.34.15.28	29,176	44,9	42,1	30,18				65.21.53,74	+25,98	52 Arietis.
	3.12.37,88				3,24				40.59.49,40	+25,32	A.S.C. 340.
	2.55.16,52				2,95				40.42.27,75	+23,53	α Persei R.
	2.55.16,57								40.42.27,80		α Persei.
	28.35.40,65	29,196	43,0	42,0	31,54				66.23.20,47	+22,76	β Pleiadum.
	28.35.40,65				31,54				66.23.20,47	+22,45	η Tauri.
	28.38.26,98				31,60				66.26.6,86	+22,37	γ Pleiadum.
	28.33.26,52				31,49				66.21.6,29	+22,37	δ Pleiadum.
	30.33.36,22				34,16				68.21.18,66	+21,08	α Tauri.
	26.6.11,86	29,200	42,8	41,5					63.43.50,59		γ
12,01	26.6.10,68					28,38	26.32,88	16.34,05	63.43.49,41		γ
	26.6.10,80								63.43.49,53		γ
	26.6.10,75								63.43.49,48		γ
	26.6.10,59								63.43.49,32		γ
	32.11.29,02	29,226	45,2	45,4	36,20				69.59.13,50	-20,49	Arcturus R.
	32.11.29,43								69.59.13,91		Arcturus.
	69.26.43,56	29,210	46,7	47,6	2.31,39	8,10		16.11,40	107.32.26,53		⊙.
	69.59.1,72				2.35,74	8,12			107.32.26,22		⊙.
	76.20.54,30	29,460	46,0	46,6	3.53,62	5,85	10,670	5,67	114.11.44,68		Venus.
	13.34.9,24	29,464	46,5	46,0	13,98				51.24.31,50	+8,57	α Lyrae R.
12,11	13.34.9,85								51.21.32,11		α Lyrae.
13,08	19.1.28,67				19,97				56.48.56,92	+9,22	β Lyrae R.
	19.1.31,23								56.48.59,48		β Lyrae.
11,47	31.30.3,84	29,248	43,3	42,2	35,50				69.17.47,62	+26,54	ε Arietis.
	27.34.15,32				30,25				65.21.53,85	+26,25	52 Arietis.
	3.12.36,03				3,25				40.59.47,56	+26,16	A.S.C. 340
	2.55.15,73				2,96				40.42.26,97	+24,37	α Persei R.
	2.55.15,07								40.42.26,31		α Persei.
	28.35.39,98	29,258	43,0	41,8	31,62				66.23.19,78	+22,98	β Pleiadum.
	28.35.39,98				31,62				66.23.19,78	+22,69	η Tauri.
	28.38.26,12				31,68				66.26.6,08	+22,60	γ Pleiadum.
	28.33.25,67				31,57				66.21.5,52	+22,60	δ Pleiadum.
	76.40.25,50	29,018	55,7	57,3	3.53,16	5,94	10,683	5,82	114.40.15,18		Venus.
11,99	45.3.18,57	29,400	47,4	46,2					81.55.11,22		γ
	45.3.18,72								81.55.11,37		γ
	45.3.18,65				57,82	40.32,29		15.41,16	81.55.11,30		γ
	45.3.18,56								81.55.11,21		γ
	45.3.18,82								81.55.11,47		γ
	-10.23.12,02	29,412	47,0	45,0	10,62				27.23.45,64	-33,13	α Ursae Maj. R.
	-10.23.11,63				55,90				27.23.46,01		α Ursae Majoris.
	44.0.12,67				1.12,45				81.48.16,85	-16,52	γ Leonis.
	51.23.52,60				1.7,29				89.12.13,33	14,52	ρ Leonis.
	49.18.38,00								87.6.53,57	15,36	q Leonis.
11,60	-17.59.2,67	29,436	46,4	44,8	18,83				19.47.46,78	-35,26	α Draconis R.
	-17.59.3,08								19.47.46,37		α Draconis.
12,30	39.51.21,48	29,892	38,3	37,0	40,94				77.39.19,70	+29,42	* R. 1 <sup>h</sup> . 24 <sup>m</sup> . 16 <sup>s</sup>
	11.35.56,75				12,29				49.23.17,32	+33,83	α Andromeda.
	29.29.37,19				33,86				67.17.19,33	+30,02	α Arietis R.
	29.29.38,18								67.17.20,32		α Arietis.
	32.26.35,85				38,04				79.14.22,17	+28,89	* R. 2 <sup>h</sup> . 13 <sup>m</sup> . 9 <sup>s</sup>
	35.24.0,63	29,900	38,5	36,8	42,55				73.11.51,46	+27,07	* Arietis.
12,81	32.11.29,28	30,010	38,4	38,4	37,71				69.59.15,27	22,86	Arcturus R.
11,87	32.11.31,30								69.59.17,29		Arcturus.
	24.27.37,03			59,5	27,21				62.15.12,52	20,59	α Bootis R.
12,77	24.27.37,17								62.15.12,66		α Bootis.
	-22.34.53,12				24,88				15.11.50,28	-25,22	β Ursae Min. R.
	-22.34.51,18								15.11.52,22		β Ursae Minoris.

Coincidence of Micrometer Wire with fixed Wire = 10', 117, 10', 124, 10', 127, 10', 131, 10', 137 at the five wires. From Nov. 16 = 10', 116, 10', 123, 10', 126, 10', 130, 10', 136.

One Micrometer Revolution = 20", 868.

Correction for Run = -1", 9. From Nov. 16 = -1", 7.

Adopted Zenith Point = 112° 46' 11", 80.

Assumed Co-latitude = 57°. 47'. 8". 38.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Nov. 20	(a) ☉ S.L. M. ....	185. 0	0. 31,2	30,4	31,2	31,2	28,7	30,9	11,350	- 25,54			185. 0. 5,03	G.
	☉ N.L. ....	184. 25	2. 47,1	45,4	49,3	46,4	44,1	44,8					184. 27. 46,03	G.
	Venus S.L. ....	189. 50	2. 3,3	2,1	5,9	4,0	2,8	2,3					189. 52. 3,28	G.
	β Cephei R. M. ....	310. 20	4. 25,0	24,3	26,0	25,2	23,0	24,2	8,071	+ 42,88			310. 25. 7,25	G.
	β Cephei. ....	95. 5	2. 19,8	15,0	19,2	16,7	14,0	15,8					95. 7. 16,62	G.
	ε Pegasi R. M. ....	249. 40	2. 36,0	33,1	35,0	33,9	31,0	34,5	8,026	+ 43,83			249. 43. 17,60	G.
	ε Pegasi. ....	155. 45	4. 8,3	7,0	10,8	6,8	5,8	7,5					155. 49. 7,47	G.
Nov. 21	☉ N.L. M. ....	184. 40	2. 25,4	24,8	27,1	25,6	25,4	25,2	13,857	- 1. 17,86			184. 41. 7,59	G.
	☉ S.L. ....	185. 10	3. 29,3	28,2	29,9	31,8	29,1	30,5					185. 13. 29,60	G.
Nov. 24	☉ S.L. M. ....	185. 50	1. 32,8	33,5	33,1	34,6	34,3	32,1	11,501	- 28,69			185. 51. 4,63	G.
	☉ N.L. ....	185. 15	3. 43,1	43,8	41,9	45,3	44,8	44,6					185. 18. 44,20	G.
	Σ 2. ....	86. 5	4. 22,5	20,3	23,6	21,0	20,9	21,4					86. 9. 21,37	G.
	η Cassiopeiæ. ....	108. 0	0. 35,8	34,7	39,0	35,8	33,6	35,0					108. 0. 35,62	G.
	(b) Polaris R. M. ....	329. 0	0. 37,1	36,4	37,8	38,8	35,0	38,8	10,201	- 1,56			329. 0. 35,72	G.
	Polaris. ....	76. 30	1. 48,1	45,1	49,2	46,8	44,2	47,2					76. 31. 46,67	G.
Nov. 25	☉ N.L. M. ....	185. 30	1. 27,2	26,3	28,8	27,5	26,9	27,8	13,241	- 1. 5,00			185. 30. 22,33	G.
	☉ S.L. ....	186. 0	2. 42,9	41,9	44,4	42,8	41,8	43,8					186. 2. 42,78	G.
	α Cygni R. M. ....	285. 15	1. 26,7	26,8	29,4	28,1	24,1	27,8	9,888	+ 4,97			285. 16. 32,04	G.
	α Cygni. ....	120. 15	0. 48,5	49,0	52,3	49,8	46,6	46,9					120. 15. 48,80	G.
	α Draconis R. M. ....	305. 40	2. 17,7	15,9	18,9	17,0	13,4	16,2	13,439	- 1. 8,92	+2	- 1,30	305. 41. 6,16	G.
	α Draconis. ....	99. 50	1. 17,8	14,5	19,0	15,7	12,9	13,9			+2½	+ 2,03	99. 51. 17,60	G.
	(d) Arcturus R. M. ....	260. 35	0. 35,5	34,0	34,9	34,8	33,1	34,9	12,671	- 53,02	+1	- 0,05	260. 34. 41,43	G.
Nov. 26	Arcturus. ....	144. 55	2. 44,0	40,9	45,5	40,3	40,8	39,8			+2	+ 0,22	144. 57. 41,95	G.
	☉ S.L. M. ....	186. 15	0. 40,2	39,5	41,0	39,9	38,1	39,7	14,599	- 1. 33,34			186. 14. 6,36	G.
	☉ N.L. ....	185. 40	1. 45,7	44,9	48,0	45,9	43,8	45,8					185. 41. 45,60	G.
	Venus S.L. ....	189. 50	4. 31,2	30,0	33,8	30,9	31,3	32,4					189. 54. 31,37	G.
	α Lyrae R. M. ....	279. 10	1. 32,7	31,0	32,1	30,8	26,9	30,2	8,770	+ 28,30			279. 11. 58,85	G.
	α Lyrae. ....	126. 20	0. 24,0	24,7	26,2	24,0	22,4	23,4					126. 20. 24,10	G.
Nov. 27	χ³ Capricorni. ....	186. 5	2. 13,6	12,9	15,2	14,1	12,0	13,4					186. 7. 13,42	G.
	α Cephei R. M. ....	302. 25	2. 26,8	23,9	29,3	25,3	22,0	24,6	7,831	+ 47,89			302. 28. 13,09	G.
	α Cephei. ....	103. 0	4. 9,3	8,3	12,3	8,9	6,5	7,0					103. 4. 8,52	G.
	β Aquarii R. M. ....	234. 15	3. 25,3	22,3	24,2	22,4	21,3	24,5	8,628	+ 31,27			234. 18. 54,44	G.
	β Aquarii. ....	171. 10	3. 27,2	26,0	30,0	28,0	27,3	29,2					171. 13. 27,78	G.
	α Aquarii R. M. ....	239. 25	3. 27,9	26,1	28,8	26,7	24,8	28,9	7,611	+ 52,48			239. 29. 19,51	G.
	α Aquarii. ....	166. 0	3. 1,7	0,1	6,8	2,1	0,5	2,8					166. 3. 2,18	G.
Nov. 27	γ Tauri. ....	141. 0	2. 46,3	42,4	49,0	43,3	43,0	44,8					141. 2. 44,67	G.
	9 Tauri. ....	142. 15	2. 30,3	27,0	33,7	27,6	28,3	29,8					142. 17. 29,33	G.
	F Eridani. ....	182. 55	0. 57,9	56,9	62,0	57,6	54,4	57,8					182. 55. 57,72	G.
	g Pleiadum. ....	141. 10	1. 17,4	15,2	20,3	15,6	13,9	16,0					141. 11. 16,33	G.
	Piazzi III. 135. M. ....	...	...	...	...	...	...	...	18,540	- 2. 55,58			141. 8. 20,75	G.
	c Pleiadum M. ....	...	...	...	...	...	...	...	24,216	- 4. 54,03			141. 6. 22,30	G.
	β Ursæ Min. R. M. ....	315. 20	1. 17,3	15,2	17,5	15,9	12,9	15,9	10,836	- 14,82			315. 21. 0,90	G.
Nov. 27	β Ursæ Minoris. ....	90. 10	1. 26,4	22,1	27,0	23,1	20,6	23,0					90. 11. 23,63	G.
	☉ N.L. M. ....	185. 50	2. 32,0	29,4	33,2	31,0	30,2	31,3	9,592	+ 11,14			185. 52. 42,19	G.
	☉ S.L. ....	186. 25	0. 4,9	4,0	7,4	5,8	3,5	4,7					186. 25. 5,05	G.
	Venus S.L. ....	189. 50	2. 20,3	18,2	22,6	19,9	19,9	19,0					189. 52. 19,87	G.
	β Lyrae R. M. ....	273. 40	3. 30,3	28,0	32,0	28,0	26,6	28,9	6,768	+ 1. 10,07			273. 44. 38,87	G.
	β Lyrae. ....	131. 45	2. 46,0	43,8	49,0	44,2	44,8	43,2					131. 47. 45,03	G.
Nov. 27	γ Aquilæ R. M. ....	250. 45	2. 19,0	17,1	18,4	16,3	15,9	17,2	7,820	+ 48,13			250. 48. 5,33	G.
	γ Aquilæ. ....	154. 40	4. 21,0	18,3	23,7	18,9	19,7	20,8					154. 44. 20,18	G.
	β Aquilæ R. M. ....	246. 30	4. 37,8	56,2	39,3	36,0	35,3	38,2	8,328	+ 37,53			246. 35. 14,43	G.
	β Aquilæ. ....	158. 55	2. 8,4	7,8	13,2	8,5	8,7	8,4					158. 57. 9,07	G.
	χ² Capricorni. ....	186. 5	2. 15,8	14,1	17,3	15,4	14,9	15,1					186. 7. 15,32	G.
	γ Tauri. ....	141. 0	2. 45,9	43,7	49,5	43,0	44,8	44,9					141. 2. 45,17	G.
	9 Tauri. ....	142. 15	2. 29,5	26,1	32,9	26,0	28,8	28,4					142. 17. 28,50	G.
Nov. 27	F Eridani. ....	182. 55	0. 57,0	57,0	61,0	56,8	57,6	57,7					182. 55. 57,80	G.

Runs taken, and Coincidence found to be unaltered Dec. 2, 1<sup>h</sup>. (Temp. 45°)

(a) Hurried in taking S.L.

(b) Too close to the fixed wire.

(c) Extremely minute and faint.

(d) Unsteadily.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
11,94	72. 13. 53,23	30,000	40,8	41,0	3. 3,90	8,25	10,718	16. 13,20 6,18	109. 47. 43,96	+ 32,32	☉.
	71. 41. 34,23				2. 58,22	8,22			109. 47. 45,71		☉.
	77. 5. 51,48	29,990	43,0	43,5	4. 13,23	6,03			114. 57. 0,78		Venus.
	- 17. 38. 55,45	29,986	43,0	42,3	18,90				20. 7. 53,93		β Cephei R.
12,54	- 17. 38. 55,18								20. 7. 54,20	+ 20,56	β Cephei.
	43. 2. 54,20				55,43				80. 50. 57,91		ε Pegasi R.
	43. 2. 55,67								80. 50. 59,38		ε Pegasi.
	71. 54. 55,79	29,240	44,9	45,5	2. 54,31	8,24		16. 13,40	110. 1. 3,54		☉.
	72. 27. 17,80				2. 59,91	8,26			110. 1. 4,33		☉.
	73. 4. 52,83	30,100	49,7	51,2	3. 10,05	8,29		16. 13,90	110. 38. 48,97	+ 40,26	☉.
	72. 52. 32,40				3. 3,95	8,27			110. 38. 50,26		☉.
	- 26. 36. 50,43	30,240	44,5	42,8	29,98				11. 9. 47,87		Σ 2.
	- 4. 45. 36,18				4,98				33. 1. 27,12		η Cassiopeiæ.
11,20	- 36. 14. 23,92		43,8	42,1	43,90				1. 32. 0,46	+ 38,06	Polaris R.
	- 36. 14. 25,13								1. 31. 59,25		Polaris.
10,42	72. 44. 10,53	30,364	39,8	39,0	3. 12,58	8,28		16. 13,10	110. 50. 37,21	+ 23,53	☉.
	73. 16. 30,98				3. 19,03	8,31			110. 50. 35,88		☉.
	7. 29. 39,76	30,374	42,8	41,9	7,92				45. 16. 55,96		α Cygni R.
	7. 29. 37,00								45. 16. 53,20		α Cygni.
11,88	- 12. 54. 54,36	30,400	39,8	35,8	14,00				24. 51. 59,92	- 31,52	α Draconis R.
	- 12. 54. 54,20								24. 52. 0,08		α Draconis.
	32. 11. 30,37				38,11				69. 59. 17,06		Arcturus R.
	32. 11. 30,15								69. 59. 16,84		Arcturus.
11,48	73. 27. 51,56	30,398	40,0	39,6	3. 21,35	8,32		16. 14,20 5,99	111. 2. 1,67	+ 5,41	☉.
	72. 55. 33,80				3. 14,77	8,29			111. 2. 2,76		☉.
	77. 8. 19,57	30,372	42,3	42,5	4. 17,82	6,18			114. 59. 33,50		Venus.
	13. 34. 12,95				14,52				51. 21. 35,75		α Lyrae R.
10,81	13. 34. 12,30								51. 21. 35,10	+ 7,03	α Lyrae.
	73. 21. 1,62		41,4	39,4	3. 19,84				111. 11. 29,74		χ <sup>1</sup> Capricorni.
	- 9. 42. 1,29				10,35				28. 4. 56,64		α Cephei R.
	- 9. 42. 3,28								28. 4. 54,65		α Cephei.
11,11	58. 27. 17,36				1. 38,29				96. 16. 3,93	+ 13,86	β Aquarii R.
	58. 27. 15,98								96. 16. 2,55		β Aquarii.
	53. 16. 52,29			38,3	1. 21,17				91. 5. 21,74		α Aquarii R.
	53. 16. 50,38								91. 5. 19,83		α Aquarii.
10,85	28. 16. 32,87		37,0	34,0	32,92				66. 4. 11,07	+ 24,18	γ Tauri.
	29. 31. 17,53				34,65				67. 19. 0,46		9 Tauri.
	70. 9. 45,92				2. 48,23				107. 59. 42,43		F Eridani.
	28. 25. 4,53				33,11				66. 12. 15,92		g Pleiadum.
12,27	28. 22. 8,95				33,05				66. 9. 50,28	+ 23,14	Piazzi III 135.
	28. 20. 10,50				33,00				66. 7. 51,78		c Pleiadum.
	- 22. 54. 49,10	30,364	36,8	33,7	25,46				15. 11. 53,72		β Ursa Min. R.
	- 22. 54. 48,17								15. 11. 54,65		β Ursa Minoris.
11,95	73. 6. 30,39	30,360	37,8	37,8	3. 17,48	8,30		16. 13,10 6,44	111. 13. 2,25	+ 6,31	☉.
	73. 38. 53,25				3. 24,21	8,33			111. 13. 3,01		☉.
	77. 6. 8,07	30,350	39,9	40,0	4. 18,28	6,20			114. 57. 21,99		Venus.
	19. 1. 32,93				20,83				50. 49. 2,04		β Lyrae R.
12,76	19. 1. 33,23								50. 49. 2,34	+ 8,78	β Lyrae.
	41. 58. 6,47				54,28				79. 46. 9,03		γ Aquila R.
	41. 58. 8,38								79. 46. 10,94		γ Aquila.
	46. 10. 57,37				1. 2,88				83. 59. 8,53		β Aquila R.
11,75	46. 10. 57,27								83. 59. 8,43	+ 7,02	β Aquila.
	73. 21. 3,52			38,4	3. 20,12				111. 11. 31,92		χ <sup>1</sup> Capricorni.
	28. 16. 33,37		36,5	34,9	32,83				66. 4. 14,48		γ Tauri.
	29. 31. 16,70				34,56				67. 18. 59,54		9 Tauri.
	70. 9. 46,00				2. 47,78				107. 59. 42,06		F Eridani.

Coincidence of Micrometer Wire with fixed Wire = 10', 116, 10', 123, 10', 126, 10', 130, 10', 136 at the five wires.

One Micrometer Revolution = 20", 868.

Correction for Hum. = 1", 7 From Nov 26 = 1", 5

Adopted Zenith Point = 11° 46' 11", 80.

Assumed Co-latitude = 37° 47' 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer. ° ' "	Microscopes.						Microm. Reading. r.	Correction to Fixed Wire. " "	Interval of Obs. from Middle Wire.	Correction to Middle Wire. "	Concluded reading of Circle. ° ' "	Observer.
			A	B	C	D	E	F						
Nov. 27	g Pleiadum . . . . .	141. 10	1. 16,8	13,7	19,3	13,8	15,0	15,0					141. 11. 15,53	G.
	Piazzi III. 135. M. . . . .	...	...	...	...	...	...	...	18,530	-2. 55,37			141. 8. 20,16	G.
	c Pleiadum M. . . . .	...	...	...	...	...	...	...	24,180	-4. 53,27			141. 6. 22,26	G.
	β Ursæ Min. R. M. . . . .	315. 20	1. 22,8	20,7	23,3	21,0	18,8	22,0	11,129	-20,93			315. 21. 0,44	G.
	β Ursæ Minoris . . . . .	90. 10	1. 25,8	20,8	26,8	21,8	20,2	22,5					90. 11. 22,92	G.
Nov. 28	☉ S.L. M. . . . .	186. 35	0. 26,3	23,3	27,2	27,5	25,0	26,1	9,410	+14,95			186. 35. 40,83	G.
	☉ N.L. . . . .	186. 0	3. 20,3	17,4	21,6	20,2	18,9	19,6					186. 3. 19,50	G.
	α Lyre R. M. . . . .	279. 10	2. 25,1	23,0	25,2	23,7	20,9	23,4	11,298	-24,46			279. 11. 58,97	G.
	α Lyre . . . . .	126. 20	0. 24,2	24,4	27,3	24,4	24,5	24,2					126. 20. 24,82	G.
	Venus S.L. . . . .	189. 45	4. 24,3	24,2	27,0	25,4	26,0	25,0					189. 49. 25,10	G.
	β Lyre R. M. . . . .	273. 40	4. 11,3	9,5	12,6	10,1	7,8	10,0	8,779	+28,11			273. 44. 38,13	G.
	β Lyre . . . . .	131. 45	2. 44,8	43,7	47,9	44,0	44,4	42,8					131. 47. 44,47	G.
	α Pegasi R. M. . . . .	254. 50	4. 28,9	27,7	31,4	27,4	28,6	28,9	7,689	+50,87			254. 55. 19,47	G.
	α Pegasi . . . . .	150. 35	2. 3,4	1,9	7,0	2,0	2,3	1,6					150. 37. 2,93	G.
	γ Tauri . . . . .	141. 0	2. 46,4	42,8	48,8	43,2	43,1	44,5					141. 2. 44,67	G.
	γ Tauri . . . . .	142. 15	2. 29,8	26,8	32,3	27,4	28,3	28,8					142. 17. 28,78	G.
	g Pleiadum . . . . .	141. 10	1. 18,1	15,1	19,2	15,6	14,7	15,8					141. 11. 16,35	G.
	Piazzi III. 135. M. . . . .	...	...	...	...	...	...	...	18,542	-2. 55,63			141. 8. 20,72	G.
	c Pleiadum M. . . . .	...	...	...	...	...	...	...	24,198	-4. 53,65			141. 6. 22,70	G.
	ζ U. Min. SP. R. M. . . . .	342. 15	0. 20,2	17,9	20,0	21,4	16,3	19,8	9,630	+10,36			342. 15. 29,61	G.
	ζ Ursæ Minoris SP. . . . .	63. 15	1. 56,9	53,0	57,8	53,9	52,8	55,0					63. 16. 54,80	G.
Dec. 1	(a) ☉ N.L. M. . . . .	186. 30	3. 19,9	20,8	20,3	20,0	21,2	20,9	11,803	-35,00			186. 32. 45,35	G.
	☉ S.L. . . . .	187. 5	0. 8,3	8,1	9,8	11,4	8,6	7,8					187. 5. 9,00	G.
Dec. 2	☉ S.L. M. . . . .	187. 15	0. 34,0	33,8	35,9	35,9	33,9	34,7	14,647	-1. 34,34			187. 14. 0,33	G.
	☉ N.L. . . . .	186. 40	1. 38,7	38,1	39,9	39,4	40,5	39,1					186. 41. 39,20	G.
	α Lyre R. M. . . . .	279. 10	1. 32,4	30,9	31,1	31,6	27,9	30,8	8,872	+26,16			279. 11. 56,88	G.
	α Lyre . . . . .	126. 20	0. 26,8	25,1	26,9	26,6	24,7	25,2					126. 20. 25,87	G.
	(b) Venus S.L. . . . .	189. 30	0. 9,3	8,3	10,5	10,3	9,0	9,8					189. 30. 9,53	G.
	κ Aquarii . . . . .	170. 0	0. 13,0	14,1	15,6	15,2	13,7	14,0					170. 0. 14,25	G.
	λ Aquarii . . . . .	173. 20	2. 42,0	40,2	45,0	41,0	41,4	41,9					173. 22. 41,78	G.
	(c) S.L. M. . . . .	169. 30	0. 52,8	52,0	56,0	53,9	51,8	52,8	10,532	-8,69	-2	-8,34	169. 30. 36,14	G.
	S.L. M. . . . .	...	...	...	...	...	...	...	10,783	-13,77	-1	-4,17	169. 30. 35,23	G.
	S.L. M. . . . .	...	...	...	...	...	...	...	10,919	-16,55			169. 30. 36,62	G.
	S.L. M. . . . .	...	...	...	...	...	...	...	11,158	-21,46	+1	+4,17	169. 30. 35,88	G.
	S.L. M. . . . .	...	...	...	...	...	...	...	11,336	-25,04	+2	+8,34	169. 30. 36,47	G.
	Uranus . . . . .	171. 0	0. 44,1	43,8	48,0	44,3	43,8	44,0					171. 0. 44,63	G.
	κ <sup>1</sup> Piscium . . . . .	164. 30	4. 32,1	31,9	35,4	32,1	32,6	33,4					164. 34. 32,68	G.
	(d) γ Cephei R. M. . . . .	317. 15	2. 27,4	27,1	28,0	26,8	23,4	28,1	8,724	+29,26			317. 17. 55,94	G.
	γ Cephei . . . . .	88. 10	4. 27,6	24,1	28,3	25,0	24,1	26,9					88. 14. 25,78	G.
	Arcturus R. M. . . . .	260. 30	4. 28,7	24,8	28,9	26,4	26,0	28,0	9,588	+11,23			260. 34. 38,15	G.
	Arcturus . . . . .	144. 55	2. 45,0	43,4	49,0	44,3	42,2	43,8					144. 57. 44,48	G.
	α Coron. Bor. R. M. . . . .	267. 45	3. 26,9	24,6	29,0	24,5	23,6	25,8	8,755	+28,61			267. 48. 54,18	G.
	α Coronæ Borealis . . . . .	137. 40	3. 30,2	29,7	33,6	28,9	30,9	30,0					137. 43. 30,37	G.
Dec. 3	(c) ☉ N.L. M. . . . .	186. 50	2. 19,7	17,3	21,8	19,8	18,0	19,4	16,650	-2. 16,14			186. 50. 3,08	G.
	☉ S.L. . . . .	187. 20	2. 27,1	26,0	29,4	27,4	26,5	27,7					187. 22. 27,23	G.
	α Lyre R. M. . . . .	279. 10	2. 42,0	39,8	42,8	41,0	37,8	40,6	12,158	-42,41			279. 11. 58,12	G.
	α Lyre . . . . .	126. 20	0. 26,3	25,8	29,8	25,9	26,1	24,1					126. 20. 26,32	G.
	Venus S.L. . . . .	189. 20	3. 23,0	23,1	26,2	23,3	23,0	23,5					189. 23. 23,52	G.
	γ Aquilæ R. M. . . . .	250. 45	2. 24,8	22,9	25,8	22,4	22,0	23,2	8,133	+41,59			250. 48. 4,99	G.
	γ Aquilæ . . . . .	154. 40	4. 19,2	17,3	22,9	18,1	18,0	19,1					154. 44. 18,88	G.
	α Pegasi R. M. . . . .	254. 50	4. 35,2	33,0	37,8	33,2	31,4	35,0	7,995	+44,48			254. 55. 18,51	G.
	α Pegasi . . . . .	150. 35	1. 61,8	59,9	66,6	60,7	59,2	60,4					150. 37. 1,33	G.
	Uranus . . . . .	171. 0	0. 30,9	29,8	34,3	30,8	29,0	31,8					171. 0. 31,07	G.
	κ <sup>1</sup> Piscium . . . . .	164. 30	4. 30,9	28,0	35,9	30,3	31,2	32,7					164. 34. 31,27	G.
	λ Piscium . . . . .	164. 0	3. 21,9	19,3	25,3	20,4	20,0	22,4					164. 3. 21,38	G.

(a) The glasses and divisions were covered with moisture from the change of temperature: the microscope readings are consequently doubtful.

(b) Very cloudy.  
(d) Not good; too cloudy.

(c) Tremulous.  
(e) Bad definition.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
11.68	28.25. 3.73	30.350	36.5	34.0	33.03				66.12.45.04	+23.57	$\gamma$ Pleiadum.
	28.22. 8.36				32.96				66. 9.49.60	+23.47	Piazz III. 135.
	28.20.10.46				32.92				66. 7.51.66	+23.47	$\epsilon$ Pleiadum.
	-22.34.48.64	30.316	35.0	34.5					15.11.54.26	-28.25	$\beta$ Ursæ Min. R.
	-22.34.48.88				25.38				15.11.54.02		$\beta$ Ursæ Minoris.
11.90	73.49.29.03	30.310	37.8	39.0	3.25.64	8.33		16.14.60	111.23.40.02		$\odot$ .
	73.17. 7.70				3.18.78	8.31			111.23.41.05		$\odot$ .
	13.34.12.83	30.300	40.4	42.4	14.48				51.21.35.59	+4.89	$\alpha$ Lyrae R.
	13.34.13.02								51.21.35.78		$\alpha$ Lyrae.
	77. 3.13.30				4.13.58	6.22	10.743	6.44	114.53.24.50		Venus.
11.30	19. 1.33.67				20.69				56.49. 2.64	+6.08	$\beta$ Lyrae R.
	19. 1.32.67								56.49. 1.64		$\beta$ Lyrae.
11.20	37.50.52.33	30.288	38.2	37.0	47.10				75.38.47.71	+27.40	$\alpha$ Pegasi R.
	37.50.51.13								75.38.46.51		$\alpha$ Pegasi.
	28.16.32.87	30.260	35.4	34.0	32.80				66. 4.13.95	+24.57	$\gamma$ Tauri.
	29.31.16.98				34.52				67.18.59.78	+24.25	$\eta$ Tauri.
	28.25. 4.55				32.99				66.12.45.82	+23.60	$\gamma$ Pleiadum.
12.21	28.22. 8.92				32.92				66. 9.50.12	+23.52	Piazz III. 135.
	28.20.10.90				32.88				66. 7.52.05	+23.52	$\epsilon$ Pleiadum.
	49.29.17.81								-11.43.20.80	-20.79	$\zeta$ U. Min. SP. R.
	49.29.17.00				1.11.27				-11.43.19.99		$\zeta$ Ursæ Min. SP.
11.38	73.46.33.55	29.886	51.0	52.4	3.16.54	8.34		16.15.10	111.53. 5.13		$\odot$ .
	74.18.57.20				3.23.49	8.36			111.53. 5.51		$\odot$ .
	74.27.48.53	30.132	45.0	44.8	3.30.44	8.37		16.15.20	112. 2. 3.68		$\odot$ .
	73.55.27.40				3.23.23	8.34			112. 2. 5.77		$\odot$ .
	13.34.14.92	30.146	46.2	45.8	14.31				51.21.37.51	+3.85	$\alpha$ Lyrae R.
10.56	13.34.14.07								51.21.36.66		$\alpha$ Lyrae.
	76.43.57.73				4. 6.39	6.32	10.748	6.49	114.34.59.59		Venus.
	57.14. 2.45	30.222	42.8	40.5	1.33.10				95. 2.43.83	+18.81	$\kappa$ Aquarii.
	60.36.29.98				1.46.29				98.25.24.55	+18.53	$\lambda$ Aquarii.
	56.44.24.34	30.232	41.8	39.4					93.30.50.19		$\lambda$ .
11.32	56.44.23.43								93.30.49.28		$\lambda$ .
	56.44.24.82				1.31.61	46.53.53		15.20.51	93.30.50.67		$\lambda$ .
	56.44.24.08								93.30.49.93		$\lambda$ .
	56.44.24.67								93.30.50.52		$\lambda$ .
	58.14.52.89				1.37.04	0.36			96. 3.17.79		Uranus.
12.22	51.48.20.88				1.16.44				89.36.45.60	+23.49	$\alpha$ Piscium.
	-24.31.44.14				27.49				13.14.56.65	+41.21	$\gamma$ Cephei R.
	-24.31.46.02								13.14.54.77		$\gamma$ Cephei.
	32.11.33.65	30.456	40.0	36.0	38.47				69.59.20.40	-26.43	Arcturus R.
	32.11.32.68								69.59.19.43		Arcturus.
12.28	24.57.17.62	30.482	39.2	37.0	28.40				62.44.54.30	-20.13	$\alpha$ Coronæ Bor. R.
	24.57.18.57								62.44.55.25		$\alpha$ Coronæ Bor.
11.94	74. 3.51.28	30.470	40.0	39.5	3.29.68	8.35		16.15.30	112.10.36.19		$\odot$ .
	74.36.15.43				3.37.20	8.37			112.10.37.24		$\odot$ .
	13.34.14.98	30.466	41.7	42.5	14.56				51.21.36.52	+3.59	$\alpha$ Lyrae R.
	13.34.14.52								51.21.37.36		$\alpha$ Lyrae.
	76.37.11.72				42.3	6.34	10.740	6.41	114.28.15.96		Venus.
9.92	41.58. 6.81				42.5				79.46. 9.30	+8.06	$\gamma$ Aquilæ R.
	41.58. 7.08				54.21				79.46. 9.57		$\gamma$ Aquilæ.
	37.50.53.20		38.7	36.0	47.46				75.38.49.05	+27.20	$\alpha$ Pegasi R.
	37.50.49.53								75.38.45.20		$\alpha$ Pegasi.
	58.14.19.27				1.38.47	0.36			90. 3. 5.66		Uranus.
9.92	51.48.19.47				1.17.58				89.36.45.33	+23.43	$\alpha$ Piscium.
	51.17. 9.58				1.16.15				89. 5.34.01	+24.27	$\lambda$ Piscium.

Coincidence of Micrometer Wire with fixed Wire = 10', 116, 10', 123, 10', 126, 10', 130, 10', 136 at the five wires.

One Micrometer Revolution = 20", 868.

Correction for Run = 1".5

Adopted Zenith Point = 112', 46", 11", 80.

Assumed Co-latitude = 37° 47' 8", 28



Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  " "	Correction to Middle Wire.  " "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Dec. 3	» S.L. M. ....	163. 15	2. 36,8	35,7	40,7	37,4	34,8	37,0	10,582	- 9,73	-2	- 8,64	163. 17. 18,56	G.
	» S.L. M. ....	...	...	...	...	...	...	...	10,779	- 13,69	-1	- 4,32	163. 17. 18,92	G.
	» S.L. M. ....	...	...	...	...	...	...	...	11,020	- 18,65			163. 17. 18,28	G.
	» S.L. M. ....	...	...	...	...	...	...	...	11,200	- 22,33	+1	+ 4,32	163. 17. 18,92	G.
	» S.L. M. ....	...	...	...	...	...	...	...	11,418	- 26,75	+2	+ 8,64	163. 17. 18,82	G.
	β Ursæ Min. R. M.	315. 20	1. 20,0	17,9	21,6	19,9	14,9	18,9	11,072	- 19,74			315. 20. 59,06	G.
Dec. 4	β Ursæ Minoris...	90. 10	1. 28,9	24,2	30,4	25,3	22,8	25,5					90. 11. 26,12	G.
	(a) » S.L. M. ....	187. 30	1. 22,2	21,2	26,0	22,3	21,0	23,5	12,713	- 53,99			187. 30. 28,64	G.
	» S.L. ....	186. 55	3. 7,2	7,1	10,9	8,0	8,5	7,9					186. 58. 8,12	G.
	» S.L. M. ....	156. 55	2. 25,8	23,0	27,8	24,7	23,8	25,5	10,460	- 7,17	-2	- 8,66	156. 57. 9,15	G.
	» S.L. M. ....	...	...	...	...	...	...	...	10,672	- 11,45	-1	- 4,33	156. 57. 9,20	G.
	» S.L. M. ....	...	...	...	...	...	...	...	10,860	- 15,32			156. 57. 9,66	G.
	» S.L. M. ....	...	...	...	...	...	...	...	10,988	- 17,90	+1	+ 4,33	156. 57. 11,41	G.
	» S.L. M. ....	...	...	...	...	...	...	...	11,269	- 23,65	+2	+ 8,66	156. 57. 9,99	G.
	π Arietis. ....	148. 10	0. 11,8	7,9	15,9	10,1	7,8	10,6					148. 10. 10,67	G.
	β U. Min. SP. R. M.	345. 40	2. 19,2	18,0	22,1	20,5	19,3	21,3	5,510	+ 1. 36,53			345. 43. 56,28	G.
	β Ursæ Minoris SP.	59. 45	3. 28,8	27,1	29,8	26,0	25,9	28,8					59. 48. 27,57	G.
	α Persei R. M. ....	289. 45	4. 21,9	18,4	24,7	20,2	17,7	20,4	5,338	+ 1. 30,92			289. 51. 0,25	G.
	α Persei. ....	115. 40	1. 25,1	22,4	27,8	23,9	18,6	23,0					115. 41. 23,40	G.
Dec. 6	α Arietis R. M. ....	263. 15	1. 22,2	20,1	24,2	22,4	18,1	23,1	9,568	+ 11,81			263. 16. 33,38	G.
	α Arietis. ....	142. 15	0. 48,0	46,3	52,9	46,8	47,1	47,4					142. 15. 48,02	G.
	θ <sup>1</sup> Arietis. ....	145. 45	3. 27,3	23,8	30,2	25,2	25,3	27,1					145. 48. 26,20	G.
	ψ Arietis. ....	147. 55	3. 19,2	15,3	22,7	16,9	16,9	18,8					147. 58. 18,03	G.
	» S.L. M. ....	145. 15	4. 17,0	14,4	21,0	14,4	16,0	16,2	9,037	+ 22,69	-2	- 7,16	145. 19. 31,68	G.
	» S.L. M. ....	...	...	...	...	...	...	...	9,190	+ 19,63	-1	- 3,58	145. 19. 32,20	G.
	» S.L. M. ....	...	...	...	...	...	...	...	9,371	+ 15,92			145. 19. 32,07	G.
	» S.L. M. ....	...	...	...	...	...	...	...	9,558	+ 12,10	+1	+ 3,58	145. 19. 31,83	G.
	» S.L. M. ....	...	...	...	...	...	...	...	9,773	+ 7,74	+2	+ 7,16	145. 19. 31,05	G.
	ε Arietis. ....	145. 50	0. 57,2	53,6	60,8	54,9	55,1	55,9					145. 50. 56,17	G.
	α Persei R. M. ....	289. 50	1. 17,4	16,4	18,8	17,9	12,9	16,8	10,927	- 16,55			289. 51. 0,05	G.
	α Persei. ....	115. 40	1. 24,0	21,3	25,4	23,2	20,2	22,4					115. 41. 22,63	G.
	g Arietis. ....	140. 45	3. 57,3	54,2	61,0	55,2	55,0	55,9					140. 48. 56,10	G.
Dec. 8	Mercury, center...	182. 55	4. 19,0	17,2	22,1	17,9	18,2	20,3					182. 59. 18,75	G.
Dec. 9	» N.L. M. ....	187. 30	3. 32,5	33,4	35,8	33,9	33,9	35,0	14,503	- 1. 31,17			187. 32. 2,61	G.
	» S.L. ....	188. 0	4. 26,0	26,8	30,4	26,7	27,2	28,9					188. 4. 27,30	G.
	α Lyrae R. M. ....	279. 10	1. 29,3	29,2	30,8	30,0	25,2	29,8	8,892	+ 25,91			279. 11. 54,93	G.
	α Lyrae. ....	126. 20	0. 26,7	27,1	30,2	27,4	25,4	26,2					126. 20. 27,13	G.
	Venus S.L. ....	188. 25	3. 26,7	25,2	28,9	27,0	25,9	27,7					188. 28. 26,62	G.
	γ Tauri. ....	137. 20	4. 25,7	22,9	29,2	25,2	25,1	26,8					137. 24. 25,12	G.
	ξ Draco. SP. R. M.	3. 35	3. 21,8	20,5	23,2	21,0	19,2	23,3	15,365	- 1. 49,16			3. 36. 32,06	G.
	ξ Draconis SP. ....	41. 55	0. 51,7	49,8	54,4	50,8	48,8	52,4					41. 55. 51,25	G.
	(b) » N.L. M. ....	137. 45	2. 33,8	31,8	36,4	31,9	32,0	33,1	9,472	+ 13,60	-2	+ 1,54	137. 47. 48,09	G.
	» N.L. M. ....	...	...	...	...	...	...	...	9,410	+ 15,05	-1	+ 0,77	137. 47. 48,77	G.
	» N.L. M. ....	...	...	...	...	...	...	...	9,385	+ 15,63			137. 47. 48,58	G.
	» N.L. M. ....	...	...	...	...	...	...	...	9,352	+ 16,41	+1	- 0,77	137. 47. 48,59	G.
	» N.L. M. ....	...	...	...	...	...	...	...	9,330	+ 16,98	+2	- 1,54	137. 47. 48,39	G.
	κ Aurigae. ....	135. 25	0. 34,3	32,5	37,0	32,9	31,4	33,8					135. 25. 33,60	G.
	ε U. Min. SP. R. M.	333. 55	0. 28,8	27,5	30,0	30,0	27,0	30,9	6,000	+ 1. 26,27			333. 56. 55,27	G.
	ε Ursæ Minoris SP.	71. 35	0. 29,1	26,8	30,8	28,0	24,8	29,5					71. 35. 28,13	G.
	Σ 941. ....	123. 15	1. 18,3	16,1	20,8	16,8	15,1	16,0					123. 16. 17,08	G.
Dec. 14	ε Geminorum R. M.	265. 50	1. 20,9	18,8	24,0	21,2	17,9	22,7	11,619	- 30,99			265. 50. 49,81	G.
	ε Geminorum. ....	139. 40	1. 33,3	30,8	35,2	31,4	30,4	33,1					139. 41. 32,23	G.
	ζ Geminorum. ....	144. 10	0. 31,9	30,7	35,0	30,8	30,8	33,3					144. 10. 32,03	G.
	* R. 1 <sup>h</sup> . 24 <sup>m</sup> . 16 <sup>s</sup> ...	152. 35	2. 31,5	26,9	36,2	26,7	28,9	30,0					152. 37. 29,87	G.
(c)	α Arietis R. M. ....	263. 15	1. 29,8	26,5	32,8	27,5	24,4	29,8	9,680	+ 5,52			263. 16. 33,89	G.
	α Arietis. ....	142. 15	0. 48,1	45,8	54,5	46,0	48,6	47,3					142. 15. 48,33	G.

Coincidence at the middle wire and Runs taken Dec. 9, 2<sup>h</sup>. (Temp. 43°.)Coincidence at the middle wire and Runs taken Dec. 16, 22<sup>h</sup>. (Temp. 32° 5.)

(a) Better than usual.

(b) Good.

(c) Between this and the preceding observation clouds came up, causing apparently a rise of temperature.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1840.	NAME OF STAR or PLANET.									
			Attach.	Free.																
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"									
12,59	50.31.6,76	30,466	38,7	36,4	1.14,04	43.58,18		15.35,58	87.19.55,32	-30,47	γ.									
	50.31.7,12								87.19.55,68		γ.									
	50.31.6,48								87.19.55,04		γ.									
	50.31.7,12								87.19.55,68		γ.									
	50.31.7,02								87.19.55,58		γ.									
	-22.34.47,26	30,386	38,0	36,0	25,36			15.11.55,66	β Ursæ Min. R.											
	-22.34.45,68							15.11.57,24	β Ursæ Minoris.											
	74.44.16,84							30,360	39,5	38,8	3.38,66	8,38	16.15,50	112.18.39,90	⊙.					
	74.11.56,32													112.18.42,81	⊙.					
	44.10.57,35													30,312	38,8	37,7	58,83	40.22,49	15.52,07	81.2.49,92
44.10.57,40	81.2.49,97	γ.																		
44.10.57,86	81.2.50,43	γ.																		
44.10.59,61	81.2.52,18	γ.																		
44.10.58,19	81.2.50,76	γ.																		
35.23.58,87	30,300	37,8	36,0	43,19	1.20,44			73.11.50,34	+27,16	α Arietis.										
-52.57.44,48								-15.11.56,64	-30,65	β U. Min. SP. R.										
-52.57.44,23								-15.11.56,30	β Ursæ Min. SP.											
2.55.11,55								40.42.22,93	+28,31	α Persei R.										
2.55.11,60								40.42.22,98	α Persei.											
10,70	29.29.38,42	29,968	39,3	36,0	34,01			16.23,58	67.17.20,71	+30,70	α Arietis R.									
	29.29.36,22								67.17.18,51		α Arietis.									
	33.2.14,40								39,10				70.50.1,78	+29,35	δ Arietis.					
	35.12.6,23								42,41				72.59.56,92	+28,23	ψ Arietis.					
	32.33.19,88								29,950		38,4	35,5	38,40	32.8,94		69.32.34,04	γ.			
	32.33.20,40	69.32.34,56	γ.																	
	32.33.20,27	69.32.34,43	γ.																	
	32.33.20,03	69.32.34,19	γ.																	
	32.33.19,25	69.32.33,41	γ.																	
	33.4.44,37	29,940	38,0	35,0	39,21	3,07			70.52.31,86	+26,05	δ Arietis.									
2.55.11,75	40.42.23,10								+28,69	α Persei R.										
2.55.10,83	40.42.22,18								α Persei.											
28.2.44,30	32,07								65.50.24,65	+25,78	g Arietis.									
70.13.6,95	29,700								38,2	38,5	2.43,44	10,64	108.2.48,03	Mercury.						
11,03	74.45.50,81	29,722	40,0	40,8	3.33,56	8,38		16.16,10	112.52.40,37		⊙.									
	75.18.15,50								112.52.41,19		⊙.									
	13.34.16,87				29,746				42,4		42,8	14,21	6,48	10,788	6,83	51.21.39,36	+1,97	α Lyre R.		
	13.34.15,33															51.21.37,82	α Lyre.			
	75.42.14,82	29,768	43,1	43,2	3.16,98					113.32.56,77	+8,83	Venus.								
	24.38.13,32									29,880		36,3	34,8	27,57	25,142	25.43,70	16.43,25	62.25.49,17	γ Tauri.	
	-70.50.20,26																	-33.6.3,40	-4,19	ξ Draco SP. R.
	-70.50.20,55																	-33.6.3,69	ξ Draconis SP.	
	25.1.36,29	62.40.12,18	γ.																	
	25.1.36,97									62.40.12,86	γ.									
25.1.36,78	62.40.12,67							γ.												
25.1.36,79	62.40.12,68							γ.												
25.1.36,59	62.40.12,48							γ.												
22.39.21,80	29,886	36,4	35,2	25,09					60.26.55,17	+5,63	α Aurigæ.									
-41.10.43,47									-3.24.27,71	+1,95	δ U. Min. SP. R.									
-41.10.43,67									-3.24.27,91	+1,96	Σ 941.									
10.30.5,28									48.17.24,70	α Gemmarum R.										
11,02	26.55.21,99				30,51				64.43.0,78	+1,95	α Gemmarum.									
	26.55.20,43								64.42.59,22		ξ Gemmarum.									
	31.24.20,23								69.12.5,18		-0,22	ξ Gemmarum.								
11,11	39.51.18,07	30,200	27,7	25,0	51,75	35,03			77.39.18,10	+28,89	α R. 1° 24', 16"									
	29.29.37,91								67.17.21,22		α Arietis R.									
	29.29.36,53								67.17.19,84		α Arietis.									

Coincidence of Micrometer Wire with fixed Wire = 10', 116, 10', 123, 10', 126, 10', 130, 10', 136 at the five wires. From Dec. 6 = 10', 124, 10', 131, 10', 134, 10', 138, 10', 144. From Dec. 14 = 10', 130 at the middle wire.

One Micrometer Revolution = 20", 868

Correction for Bars = 1", 5 From Dec. 6 = 2", 5 From Dec. 14 = 1", 9.

Adopted Zenith Point = 112° 46' 11", 80.

Assumed Co-latitude = 37° 47' 8", 28



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr to Mean N.P.D. Jan. 1, 1840.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
12,05	70. 19. 8,65	30,240	31,4	29,4	2. 50,38	9,08			108. 8. 58,43		Mercury.
	73. 11. 30,25	30,216	31,2	30,3	3. 48,54	8,41		16. 16,70	113. 18. 35,36		☉.
	75. 43. 54,65				3. 57,31	8,43			113. 18. 35,11		☉.
	13. 34. 17,35				14,82				51. 21. 40,45	+ 0,29	α Lyrae R.
	13. 34. 17,85								51. 21. 40,95		α Lyrae.
	74. 22. 18,98	30,186	32,4	29,0	3. 36,72	6,62	10,788	6,83	112. 12. 50,53		Venus.
	39. 51. 19,32	30,150	26,4	25,5	51,61				77. 39. 19,21	+ 28,85	* R. 1 <sup>h</sup> . 24 <sup>m</sup> . 16 <sup>s</sup> .
	73. 50. 35,75	29,750	32,7	31,4	3. 25,38	6,66	10,805	7,02	111. 40. 55,73		Venus
	75. 50. 40,24	29,594	33,8	33,6	3. 52,65	8,44		16. 16,90	113. 25. 15,83		☉.
	75. 18. 16,05				3. 44,00	8,41			113. 25. 16,80		☉.

Coincidence of Micrometer Wire with fixed Wire = 10', 136 at the middle Wire.

One Micrometer Revolution = 20", 868.

Correction for Runs = - 1", 9.

Adopted Zenith Point = 112°. 46'. 11", 80.

Assumed Co-latitude = 37°. 47'. 8", 28.



MEAN NORTH POLAR DISTANCES OF STARS

OBSERVED IN THE YEAR 1840,

AS DEDUCED FROM EACH DAY'S OBSERVATION,

WITHOUT CORRECTIONS FOR THE DISCORDANCE OF ZENITH POINTS,  
AND FOR THE ALTERATION OF CO-LATITUDE;

WITH

A CATALOGUE

OF THE

CONCLUDED MEAN NORTH POLAR DISTANCES,

JANUARY 1, 1840,

CORRECTED FOR THE DISCORDANCE OF ZENITH POINTS,  
AND FOR THE ALTERATION OF CO-LATITUDE

$\alpha$ Andromedæ.	$\delta$ Piscium.	Polaris R. <i>continued</i> .	$\Sigma$ 115.
Oct 30..... $^{\circ}$ 61 . 47 . 34,14	Sept. 12..... $^{\circ}$ 83 . 17 . 12,84 13 10,20	Apr. 24..... $^{\circ}$ 1 . 32 . 34,91	Sept. 13..... $^{\circ}$ 32 . 41 . 32,75
$\alpha$ Andromedæ R.	36 Andromedæ.	May 1 37,04	Oct. 11 32,61
Oct. 30.....61 . 47 . 34,42	Sept. 12.....67 . 14 . 21,77 13 20,27	June 22 37,33 23 36,28	Nov. 4 33,09
$\Sigma$ 2.	Nov. 4 21,11	Sept. 13 38,18	$\delta$ Cassiopeiæ.
Sept. 12.....11 . 10 . 29,22	$\epsilon$ Piscium.	Oct. 2 37,68 10 36,62 11 37,75	Feb. 14.....30 . 35 . 55,46
Oct. 9 28,62	Jan. 11.....82 . 58 . 22,10 12 22,43	Nov. 24 38,52	Oct. 2 56,76
Nov. 24 28,13	Sept. 12 21,15 13 20,39	Polaris SP.	$\delta$ Cassiopeiæ R.
B Piscium.	Oct. 10 21,66 11 20,81	Apr. 3.....1 . 32 . 35,45 6 37,34 14 35,82 27 36,28	Feb. 14.....30 . 35 . 57,02
Oct. 9.....82 . 4 . 2,94 10 3,58	Polaris.	Aug. 1 37,95 6 38,09 29 38,22	Oct. 2 56,68
$d$ Piscium.	Jan. 10.....1 . 32 . 38,45 11 37,62 12 37,85	Sept. 1 38,34 3 39,82 3 38,07 12 38,57 29 39,35	* R. 1 <sup>h</sup> . 16 <sup>m</sup> . 5 <sup>s</sup> .
Jan. 10... ..82 . 41 . 54,77	Feb. 14 37,88	Oct. 8 37,14 12 37,29 13 37,57	Oct. 11.....55 . 6 . 11,48
Sept. 12 54,64	Mar. 6 38,17 7 39,75	Nov. 9 37,89	Nov. 4 11,17 10 10,79
Oct. 9 54,30	Apr. 10 38,03 14 37,90 15 38,20 23 38,20 24 38,26	Polaris SP. R.	* R. 1 <sup>h</sup> . 17 <sup>m</sup> . 55 <sup>s</sup> .
10 Ceti.	May 1 39,82	Apr. 3.....1 . 32 . 39,79 6 37,83 14 37,92 27 38,68	Oct. 2.....33 . 32 . 7,57
Sept. 12.....90 . 56 . 10,85	June 22 38,39 23 40,78	Aug. 1 38,98 6 40,17 29 37,64	Nov. 4 7,42 7 7,36
Oct. 9 8,99 30 12,02	Sept. 13 40,00	Sept. 1 39,58 3 37,29 3 39,25 12 39,10 29 38,08	* R. 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> .
$\alpha$ Cassiopeiæ.	Oct. 2 38,88 10 40,98 11 38,46	Oct. 8 40,49 12 39,75 13 37,43	Oct. 11.....56 . 39 . 15,62
Sept. 12.....34 . 20 . 28,18	Nov. 24 37,31	Nov. 9 38,47	Nov. 4 16,02 10 15,53
Oct. 9 27,31 10 27,93 30 28,12	Polaris R.	$\xi$ Andromedæ.	* R. 1 <sup>h</sup> . 21 <sup>m</sup> . 49 <sup>s</sup> .
$\alpha$ Cassiopeiæ R.	Jan. 10.....1 . 32 . 37,94 11 38,84 12 37,38	Sept. 13.....45 . 18 . 42,14	Oct. 2.....33 . 37 . 56,35
Sept. 12.....34 . 20 . 27,82	Feb. 14 36,62	Oct. 2 42,43 11 42,74	Nov. 10 56,12
Oct. 9 26,76 10 28,52 30 26,92	Mar. 6 36,67 7 36,26		$\eta$ Piscium.
$\eta$ Cassiopeiæ.	Apr. 10 37,45 14 35,93 15 37,08 23 35,37		Oct. 10... ..75 . 28 . 51,05 11 51,07
Sept. 12.....33 . 2 . 5,33			Nov. 7 51,96
Oct. 9 5,33			* R. 1 <sup>h</sup> . 24 <sup>m</sup> . 16 <sup>s</sup> .
Nov. 24 4,74			Nov. 19.....77 . 39 . 49,12
			Dec. 14 46,99 15 48,06



* $\alpha$ R. 1 <sup>h</sup> . 24 <sup>m</sup> . 39 <sup>s</sup> .	$\alpha$ Arietis continued.	A.S.C. 271.	$\epsilon$ Arietis.
Oct. 2.....60. 26. 2,37	Oct. 11.....67. 17. 49,05	Feb. 13.....66. 3. 10,72	Nov. 8.....69. 18. 13,37
Nov. 4.....3,54	Nov. 19.....50,34	Oct. 12.....10,97	9.....14,04
10.....3,21	Dec. 6.....49,21		14.....14,16
	14.....50,62	$\nu$ Arietis.	$\alpha$ Ceti.
$\nu$ Andromedæ.	$\alpha$ Arietis R.	Nov. 8.....68. 44. 2,53	Feb. 13.....86. 32. 30,43
Nov. 7.....49. 23. 51,20	Feb. 13.....67. 17. 50,77		Mar. 2.....30,25
10.....50,55	14.....50,88	$\theta$ Persei.	$\alpha$ Ceti R.
19.....51,15	May 31.....51,57	Jan. 27.....41. 27. 11,48	Feb. 13.....86. 32. 31,71
* $\alpha$ R. 1 <sup>h</sup> . 27 <sup>m</sup> . 44 <sup>s</sup> .	June 23.....48,59	Feb. 13.....10,40	Mar. 2.....30,59
Oct. 2.....57. 57. 56,84	Oct. 11.....49,87	Oct. 12.....12,36	
Nov. 4.....56,78	Nov. 19.....49,35	Nov. 7.....12,14	52 Arietis.
7.....56,77	Dec. 6.....51,41	9.....11,32	Nov. 9.....65. 22. 20,20
* $\alpha$ R. 1 <sup>h</sup> . 33 <sup>m</sup> . 9 <sup>s</sup> .	14.....52,00	$\theta$ Persei R.	10.....19,72
Oct. 2.....59. 40. 18,63	$\iota$ Trianguli.	Jan. 27.....41. 27. 10,73	14.....20,10
Nov. 4.....19,85	Nov. 4.....60. 27. 1,81	Feb. 13.....12,05	A.S.C. 310.
7.....18,57	7.....0,59	$\mu$ Arietis.	Nov. 9.....41. 0. 14,00
* $\alpha$ R. 1 <sup>h</sup> . 41 <sup>m</sup> . 20 <sup>s</sup> .	$\theta^1$ Arietis.	Oct. 12.....70. 40. 26,89	10.....14,72
Nov. 4.....36. 55. 43,62	Oct. 11.....70. 50. 33,20	Nov. 7.....27,26	14.....13,72
7.....43,37	12.....31,27	10.....27,42	$\beta$ Persei.
$\epsilon$ Cassiopeiæ.	Nov. 7.....31,70	$\pi$ Ceti.	Jan. 13.....49. 39. 56,85
Nov. 10.....27. 7. 18,49	Dec. 6.....31,13	Feb. 13.....104. 32. 21,80	Feb. 8.....55,94
$\epsilon$ Cassiopeiæ R.	* $\alpha$ R. 2 <sup>h</sup> . 13 <sup>m</sup> . 9 <sup>s</sup> .	Nov. 7.....21,81	13.....55,87
Nov. 10.....27. 7. 18,43	Nov. 7.....70. 14. 51,22	8.....23,64	Nov. 7.....58,04
$\alpha$ Trianguli.	10.....51,18	$\pi$ Ceti R.	8.....57,34
Oct. 11.....61. 12. 13,50	19.....51,06	Feb. 13.....104. 32. 24,21	$\beta$ Persei R.
Nov. 4.....12,92	$\psi$ Arietis.		Jan. 13.....49. 39. 57,37
7.....12,84	Jan. 13.....73. 0. 26,13	$\eta$ Persei.	Feb. 8.....56,28
$\beta$ Arietis.	Oct. 11.....26,56	Nov. 7.....34. 46. 26,13	13.....57,32
Nov. 7.....69. 38. 36,96	12.....25,58	8.....26,81	Nov. 7.....56,90
8.....36,19	Dec. 6.....25,15	9.....26,26	8.....55,94
$\alpha$ Arietis.	A.S.C. 268.	$\epsilon$ Arietis.	$\zeta$ Arietis.
Feb. 13.....67. 17. 48,47	Oct. 12.....83. 52. 47,93	Nov. 10.....73. 12. 18,66	Jan. 13.....70. 53. 0,51
14.....48,69	Nov. 7.....49,47	19.....18,53	Nov. 7.....52. 57,56
May 31.....49,34	8.....49,79	Dec. 4.....17,50	8.....58,37
June 23.....49,50	30 Arietis.	$\Sigma$ 314.	Dec. 6.....57,91
	Nov. 7.....66. 3. 8,16	Nov. 7.....37. 39. 57,52	$\alpha$ Persei.
		8.....36,91	Jan. 13.....40. 42. 51,60
		9.....57,26	27.....51,04

<i>α Persei continued.</i>	<i>g Pleiadum.</i>	Aldebaran R.	<i>Capella continued.</i>
Feb. 8.....40. 42. 50,56	Nov. 26.....66. 13. 9,45	Mar. 3.....73. 49. 6,70	May 28.....44. 10. 20,50
Nov. 7 51,79	27 8,61	4 5,87	June 6 21,76
8 51,66	28 9,42	Apr. 27 8,59	July 10 22,55
10 51,33		28 7,61	Aug. 20 21,91
14 50,68	<i>b Pleiadum.</i>	June 5 6,13	
Dec. 4 51,29	Nov. 9.....66. 23. 42,09	7 6,29	<i>Capella R.</i>
6 50,87	10 43,23		Feb. 12.....44. 10. 21,84
	14 42,76	A.S.C. 552. SP.	Apr. 10 22,16
<i>α Persei R.</i>	Piazzì III. 135.	June 10.....23. 56. 22,23	13 22,57
Jan. 13.....40. 42. 52,68	Nov. 26.....66. 10. 13,72		27 22,48
27 50,32	27 13,07	A.S.C. 552. SP. R.	30 22,30
Feb. 8 52,40	28 13,64	June 10.....23. 56. 23,51	May 2 22,82
Nov. 7 51,66			27 21,58
8 51,90	<i>c Pleiadum.</i>	<i>ι Aurigæ.</i>	28 22,93
10 51,28	Nov. 26.....66. 8. 15,22	Feb. 11.....57. 5. 37,97	June 6 22,70
14 51,34	27 15,13	12 38,06	July 10 22,09
Dec. 4 51,24	28 15,58		Aug. 20 22,97
6 51,79		<i>ε Aurigæ.</i>	<i>Rigel.</i>
<i>g Arietis.</i>	<i>η Tauri.</i>	Mar. 3.....46. 25. 14,43	Mar. 3.....98. 23. 27,99
Jan. 13.....65. 50. 50,33	Nov. 9.....66. 23. 42,67	4 14,23	4 28,85
Nov. 7 51,17	10 42,92	<i>ε Aurigæ R.</i>	<i>Rigel R.</i>
8 49,96	14 42,47	Mar. 3.....46. 25. 16,44	Mar. 3.....98. 23. 30,61
Dec. 6 50,43		4 15,26	4 29,60
<i>7 Tauri.</i>	<i>f Pleiadum.</i>	<i>ι Tauri.</i>	<i>β Tauri.</i>
Nov. 26.....66. 4. 38,55	Nov. 9.....66. 26. 29,48	Feb. 11.....68. 38. 40,68	Feb. 12.....61. 32. 2,96
27 39,01	10 29,23	12 40,45	July 10 4,40
28 38,52	14 28,68		Aug. 20 4,78
<i>ε Eridani.</i>	<i>h Pleiadum.</i>	<i>β Eridani.</i>	<i>β Tauri R.</i>
Feb. 13...100. 0. 13,50	Nov. 9.....66. 21. 28,54	Mar. 3.....95. 17. 52,91	Feb. 12.....61. 32. 4,72
	10 28,66	4 53,73	July 10 5,62
<i>ε Eridani R.</i>	14 28,12		Aug. 20 5,30
Feb. 13...100. 0. 15,13	<i>Λ<sup>1</sup> Tauri.</i>	<i>β Eridani R.</i>	<i>ζ Orionis.</i>
	Feb. 11.....68. 21. 38,10	Mar. 3.....95. 17. 55,44	Aug. 20.....92. 1. 57,91
<i>9 Tauri.</i>	13 37,53	4 55,16	Sept. 5 56,59
Nov. 26.....67. 19. 24,64	Nov. 9 40,59		6 56,52
27 23,76	10 39,74	<i>Capella.</i>	<i>31 Camelopardi SP.</i>
28 24,03	<i>Aldebaran.</i>	Feb. 12.....44. 10. 19,90	June 13.....30. 9. 27,81
<i>F Eridani.</i>	Mar. 3.....73. 49. 3,97	Apr. 10 22,08	
Feb. 13...108. 0. 1,60	4 5,42	13 21,66	
Nov. 26 3,06	Apr. 27 5,63	27 20,15	
27 2,48	28 5,17	30 21,75	
	June 5 5,61	May 2 22,41	
	7 4,43	27 20,86	

31 Camelopardi SP. R.	$\tau$ Geminorum.	Procyon R. <i>continued.</i>	55 Camelopardi SP. R.
June 13.....30. 9. 29,14	Feb. 13.....59. 29. 55,66 14 56,41	Apr. 10.....84. 22. 12,14 25 14,18	Aug. 1.....21. 3. 53,11 24 (47,57)
C Tauri.	$\tau$ Geminorum R.	Aug. 5 12,63 9 12,26	$\beta$ Cancri.
Feb. 12 .....62. 23. 55,89	Feb. 13.....59. 29. 58,04 14 58,12	Pollux.	Feb. 5.....80. 19. 33,90 25 34,40
Dec. 9 58,00	$\delta$ Geminorum.	Jan. 22.....61. 35. 34,73	$\beta$ Cancri R.
$\delta$ Aurigæ SP.	Jan. 17.....67. 43. 41,78	Mar. 13 35,31	Feb. 5.....80. 19. 34,46 25 36,89
June 3.....35. 44. 9,08	Feb. 13 43,79 14 43,44	Apr. 10 35,88 25 33,83	$\alpha$ Ursæ Majoris.
$\delta$ Aurigæ SP. R.	$\epsilon$ Geminorum.	May 28 34,24 29 34,75	Jan. 22.....28. 45. 16,95
June 3.....35. 44. 10,66	Apr. 8.....61. 53. 25,87	July 31 35,44	Feb. 5 16,61 7 16,21
$\epsilon$ Aurigæ.	$\epsilon$ Canis Minoris.	Pollux R.	Apr. 10 16,08
Feb. 12 .....60. 26. 59,23	Jan. 17 .....80. 24. 51,04	Jan. 22.....61. 35. 36,45	$\alpha$ Ursæ Majoris R.
Dec. 9 27. 0,80	$\epsilon$ Canis Minoris R.	Mar. 13 35,54	Jan. 22.....28. 45. 15,43
$\Sigma$ 941.	Jan. 17.....80. 24. 50,49	Apr. 10 36,29 25 37,67	Feb. 5 15,50 7 15,56
Dec. 9 .....48. 17. 25,76	Castor.	May 28 37,64 29 36,62	Apr. 10 16,14
$\epsilon$ Geminorum.	Jan. 17.....57. 46. 2,36 31 2,53	July 31 36,05	$\alpha$ Ursæ Majoris SP.
Jan. 11.....64. 43. 0,69	Mar. 13 1,68	$\phi$ Geminorum.	Aug. 24.....28. 45. 15,36
Dec. 9 1,17	Castor R.	Mar. 13 62. 49. 33,59	Sept. 17 16,33
$\epsilon$ Geminorum R.	Jan. 17.....57. 46. 3,09 31 2,13	$\delta$ Cancri.	$\alpha$ Ursæ Majoris SP. R.
Jan. 11 .....64. 43. 0,84	Mar. 13 3,01	Feb. 14 61. 45. 45,42	Aug. 24.....28. 45. 14,89
Dec. 9 2,73	Procyon.	55 Camelopardi.	Sept. 17 15,05
$\zeta$ Geminorum.	Jan. 31 84. 22. 10,59	Jan. 22 21. 3. 52,48	$\delta$ Cancri.
Dec. 9 69. 12. 1,96	Mar. 13 10,36	Feb. 11 52,44	Jan. 19 .....71. 22. 10,09
A.S.C. 874. SP.	Apr. 10 11,93 25 10,35	55 Camelopardi R.	Apr. 10 11,83
July 11 7. 18. 11,70	Aug. 5 12,06 9 11,88	Jan. 22 21. 3. 51,74	$\alpha'$ Ursæ Majoris.
Aug. 1 10,75 4 13,22 11 10,08	Procyon R.	Feb. 11 51,96	Feb. 5 .....25. 7. 15,95 7 15,51
A.S.C. 874. SP. R.	Jan. 31 84. 22. 12,17	55 Camelopardi SP.	Apr. 10 16,43
July 11 .....7. 18. 9,70	Mar. 13 11,35	Aug. 1 21. 3. 52,73 24 52,50	$\alpha'$ Ursæ Majoris R.
Aug. 1 10,84 4 11,58 11 13,07			Feb. 5 .....25. 7. 14,68 7 15,14
			Apr. 10 15,55

$\pi^2$ Ursæ Majoris SP.	$\nu$ Leonis.	$\nu$ Hydræ et Crateris.	$\alpha$ Ursæ Majoris SP. R.
July 9.....25 . 7 . 14,41	Feb. 17.....76 . 47 . 40,32	Apr. 3...105 . 21 . 25,23	Aug. 14.....27 . 23 . 11,55
Aug. 24 13,19			26 11,87
$\pi^2$ Ursæ Majoris SP. R.	Regulus.	$\nu$ Hydræ et Crateris R.	Sept. 11 13,47
July 9.....25 . 7 . 16,34	Feb. 17.....77 . 15 . 10,50	Apr. 3...105 . 21 . 27,12	25 10,66
Aug. 24 14,94	Apr. 11 10,98		Oct. 6 11,59
	Oct. 22 10,77	$\alpha$ Ursæ Majoris.	8 11,11
$\eta$ Hydræ.	Regulus R.	Feb. 17.....27 . 23 . 13,42	$\chi$ Leonis.
Feb. 5.....86 . 1 . 52,19	Feb. 17.....77 . 15 . 14,25	Apr. 3 14,35	Feb. 17.....81 . 48 . 0,11
$\eta$ Hydræ R.	Apr. 11 12,52	11 12,33	Apr. 13 0,14
Feb. 5.....86 . 1 . 52,49	Oct. 22 12,57	Aug. 1 12,43	Nov. 16 0,33
$\delta$ Cancri.	$\lambda$ Ursæ Majoris.	3 13,54	
Jan. 19.....71 . 15 . 43,43	Feb. 17.....46 . 17 . 20,90	26 12,66	$\delta$ Leonis.
Mar. 13 43,42	Apr. 11 20,35	Sept. 1 13,40	Apr. 13.....68 . 36 . 0,48
Apr. 10 43,84	$\lambda$ Ursæ Majoris R.	9 12,32	Oct. 19 1,81
$\alpha^2$ Cancri.	Feb. 17.....46 . 17 . 21,78	10 12,18	22 0,36
Mar. 21.....77 . 31 . 37,34	Apr. 11 22,88	Oct. 1 12,74	$\delta$ Leonis R.
$\alpha^2$ Cancri R.	$\rho$ Leonis.	2 13,09	Apr. 13.....68 . 36 . 2,66
Mar. 21.....77 . 31 . 35,84	Apr. 11.....79 . 52 . 17,78	7 12,34	Oct. 19 2,52
$\kappa$ Ursæ Majoris.	12 19,38	9 12,53	22 2,63
Jan. 31.....42 . 12 . 57,36	$m$ Ursæ Majoris.	19 12,86	$p^4$ Leonis.
Feb. 11 56,95	Apr. 3.....32 . 5 . 46,54	22 12,14	Nov. 16.....89 . 11 . 58,81
$\kappa$ Ursæ Majoris R.	$m$ Ursæ Majoris R.	Nov. 16 12,88	$q$ Leonis.
Jan. 31.....42 . 12 . 57,00	Apr. 3.....32 . 5 . 43,84	Feb. 17.....27 . 23 . 12,29	Apr. 13.....87 . 6 . 37,29
Feb. 11 57,34	$m$ Ursæ Majoris SP.	Apr. 3 10,88	Nov. 16 38,21
$h$ Ursæ Majoris SP.	Aug. 26.....32 . 5 . 44,74	11 12,44	
Aug. 6.....26 . 14 . 38,35	Sept. 25 44,12	Aug. 1 12,09	$\lambda$ Draconis.
$h$ Ursæ Majoris SP. R.	$m$ Ursæ Majoris SP. R.	3 12,60	Nov. 16.....19 . 47 . 11,11
Aug. 6.....26 . 14 . 38,93	Aug. 26.....32 . 5 . 44,85	26 10,45	$\lambda$ Draconis R.
$\alpha$ Hydræ.	Sept. 25 42,97	Sept. 1 9,48	Nov. 16.....19 . 47 . 11,52
Mar. 7.....97 . 58 . 4,48	$l$ Leonis.	9 11,50	$\lambda$ Draconis SP.
$\alpha$ Hydræ R.	Feb. 17.....78 . 36 . 33,46	10 11,40	Jan. 3.....19 . 47 . (15,88)
Mar. 7.....97 . 58 . 6,46		Oct. 1 13,42	Sept. 11 11,01
		2 12,21	Oct. 6 11,64
		7 11,52	
		9 12,13	
		19 11,99	
		22 11,48	
		Nov. 16 12,51	
		$\alpha$ Ursæ Majoris SP.	
		Aug. 14.....27 . 23 . 11,76	
		26 12,25	
		Sept. 11 11,88	
		25 12,31	
		Oct. 6 12,63	
		8 11,78	

$\alpha$ Draconis SP. R.	$\delta$ Ursæ Majoris SP. R.	$\epsilon$ Virginis.	$\eta$ Bootis.
Jan. 3.....19. 47. 9,91	Oct. 30.....32. 4. 40,26	May 4.....78. 10. 42,77	May 13.....70. 47. 49,96
Sept. 11.....11,72	$\gamma$ Corvi.	$\epsilon$ Virginis R.	Aug. 3.....40,94
Oct. 6.....10,92	Apr. 9...106. 39. 8,77	May 4.....78. 10. 44,51	6.....51,32
$\beta$ Leonis.	$\gamma$ Corvi R.	$\theta$ Virginis.	$\eta$ Bootis R.
Apr. 6.....74. 31. 59,73	Apr. 9...106. 39. 10,52	May 13.....94. 40. 57,61	May 13.....70. 47. 51,13
9.....59,66	$\eta$ Virginis.	14.....57,48	Aug. 3.....51,78
Oct. 7.....59,61	June 7.....89. 46. 37,09	$\zeta$ Virginis.	6.....52,45
$\beta$ Leonis R.	$\eta$ Virginis.	Apr. 15...105. 19. 59,24	$\tau$ Virginis.
Apr. 6.....74. 32. 1,18	Apr. 14.....98. 34. 5,98	Spica.	Apr. 23.....87. 40. 39,84
9.....0,73	15.....5,13	Apr. 3...100. 19. 25,91	$\tau$ Virginis R.
Oct. 7.....2,75	$\alpha$ Draconis.	May 13.....24,41	Apr. 23...87. 40. 39,98
$\gamma$ Ursæ Majoris.	Apr. 9.....19. 19. 45,35	Aug. 3.....23,95	$\alpha$ Draconis.
Mar. 19.....35. 24. 56,77	$\alpha$ Draconis R.	6.....27,12	Apr. 23.....24. 51. 28,32
Apr. 9.....57,10	Apr. 9.....19. 19. 43,84	Spica R.	May 4.....29,04
June 7.....54,77	$\alpha$ Draconis SP.	Apr. 3...100. 19. 25,31	13.....28,08
Oct. 7.....55,93	Oct. 30.....19. 19. 45,25	May 13.....26,92	14.....28,92
13.....55,57	Nov. 4.....44,05	Aug. 3.....28,26	16.....28,43
19.....55,97	$\alpha$ Draconis SP. R.	6.....27,19	Nov. 25.....28,56
22.....56,02	$\alpha$ Draconis SP. R.	$\epsilon$ Virginis.	$\alpha$ Draconis R.
$\gamma$ Ursæ Majoris R.	Oct. 30.....19. 19. 44,66	May 13...107. 20. 1,19	Apr. 23...24. 51. 27,97
Mar. 19.....35. 24. 55,71	Nov. 4.....43,69	14.....1,98	May 4.....26,68
Apr. 9.....56,76	$\gamma$ Virginis.	$\eta$ Ursæ Majoris.	13.....27,91
June 7.....55,67	Apr. 14.....90. 34. 14,24	Apr. 23.....39. 53. 8,70	14.....28,21
Oct. 7.....56,01	15.....14,07	27.....7,37	16.....26,82
13.....55,59	$\epsilon$ Ursæ Majoris.	May 4.....10,11	Nov. 25.....28,40
19.....54,52	Apr. 14.....33. 10. 12,76	Aug. 3.....9,42	$\alpha$ Draconis SP.
22.....55,19	15.....13,45	4.....9,50	Nov. 7.....24. 51. 27,09
$\gamma$ Ursæ Majoris SP.	May 4.....14,20	$\eta$ Ursæ Majoris R.	10.....26,84
Oct. 9.....35. 24. 55,82	$\epsilon$ Ursæ Majoris R.	Apr. 23.....39. 53. 9,42	$\alpha$ Draconis SP. R.
Nov. 4.....57,13	Apr. 14.....33. 10. 11,97	27.....11,59	Nov. 7...24. 51. 25,81
$\gamma$ Ursæ Majoris SP. R.	15.....12,55	May 4.....10,16	10.....26,95
Oct. 9.....35. 24. 55,20	May 4.....12,17	Aug. 3.....13,42	$\epsilon$ Virginis.
Nov. 4.....54,90		4.....12,54	May 13...99. 31. 29,85
$\delta$ Ursæ Majoris SP.			14.....30,18
Oct. 30.....32. 4. 40,07			

Arcturus.	$\epsilon$ Bootis.	$\beta$ Ursæ Min. R. <i>continued.</i>	$\alpha$ Serpentis.
May 14..... $69^{\circ} 58'$ 52,01 16 52,40	June 10..... $62^{\circ} 14'$ 50,54	Oct. 30..... $15^{\circ} 11'$ 23,89	Aug. 11..... $83^{\circ} 3'$ 58,95
June 8 52,42	Aug. 3 50,56	Nov. 19 25,06	Sept. 1 58,10
Sept. 1 52,42	Nov. 19 52,07	26 25,84	
12 53,81		27 26,01	$\alpha$ Serpentis R.
Oct. 6 53,87	$\epsilon$ Bootis R.	Dec. 3 25,19	Aug. 11..... $83^{\circ} 3'$ 58,07
8 52,11	June 10..... $62^{\circ} 14'$ 50,74	$\beta$ Ursæ Minoris SP.	Sept. 1 4. 0,42
9 51,13	Aug. 3 53,09	Jan. 27..... $15^{\circ} 11'$ 27,26	$\pi$ Scorpii.
10 53,14	Nov. 19 51,93	Feb. 8 27,47	May 16... $115^{\circ} 38'$ 47,54
12 53,72		Nov. 10 26,08	Aug. 7 50,48
13 52,60	$\xi^{\circ}$ Libræ.	Dec. 4 25,74	11 50,44
14 53,78	July 13... $100^{\circ} 45'$ 32,47		$\zeta$ Ursæ Minoris.
20 53,48	$\xi^{\circ}$ Libræ R.	$\beta$ Ursæ Minoris SP. R.	May 28..... $11^{\circ} 42'$ 59,07
Nov. 10 53,42	July 13... $100^{\circ} 45'$ 33,24	Jan. 27..... $15^{\circ} 11'$ 26,86	Aug. 1 59,16
19 54,43	$\beta$ Ursæ Minoris.	Feb. 8 26,48	$\zeta$ Ursæ Minoris R.
25 52,36	Jan. 6..... $15^{\circ} 11'$ 25,26	Nov. 10 25,99	May 28..... $11^{\circ} 43'$ 0,34
Dec. 2 53,00	May 1 28,58	Dec. 4 25,99	Aug. 1 42. 59,78
	16 26,29	$\beta$ Bootis.	$\zeta$ Ursæ Minoris SP.
Arcturus R.	June 10 26,34	May 1..... $48^{\circ} 58'$ 30,26	Jan. 7..... $11^{\circ} 43'$ 0,52
May 14..... $69^{\circ} 58'$ 53,65	July 13 26,15	Aug. 3 29,21	Nov. 28 42. 59,20
16 53,13	Aug. 11 26,83	11 30,77	$\zeta$ Ursæ Minoris SP. R.
June 8 54,17	Sept. 1 25,44	$\beta$ Bootis R.	Jan. 7..... $11^{\circ} 42'$ 58,94
Sept. 1 55,05	Oct. 13 27,81	May 1..... $48^{\circ} 58'$ 29,48	Nov. 28 43. 0,01
12 54,11	14 25,53	Aug. 3 30,97	$\delta$ Scorpii.
Oct. 6 54,87	30 26,25	11 28,76	Sept. 1... $112^{\circ} 9'$ 36,69
8 53,53	Nov. 19 27,00	$\alpha$ Coronæ Borealis.	3 35,91
9 54,40	26 26,77	Aug. 11..... $62^{\circ} 44'$ 33,57	10 38,80
10 54,05	27 25,77	Sept. 1 33,08	$\sigma$ Scorpii.
12 55,04	Dec. 3 26,77	Oct. 9 33,20	May 16... $115^{\circ} 12'$ 6,45
13 55,02	$\beta$ Ursæ Minoris R.	Dec. 2 35,12	Aug. 6 9,00
14 54,07	Jan. 6..... $15^{\circ} 11'$ 25,16	$\alpha$ Coronæ Borealis R.	7 8,21
20 55,03	May 1 24,91	Aug. 11..... $62^{\circ} 44'$ 33,06	Antares.
Nov. 10 53,01	16 24,72	Sept. 1 35,42	June 13... $116^{\circ} 4'$ 9,19
19 52,41	June 10 24,31	Oct. 9 34,31	July 13 11,81
25 52,58	July 13 24,86	Dec. 2 34,17	Aug. 3 12,85
Dec. 2 53,97	Aug. 11 24,72		
$\lambda$ Virginis.	Sept. 1 23,88		
Apr. 17... $102^{\circ} 37'$ 49,55	Oct. 13 25,03		
A Ursæ Minoris.	14 25,35		
Apr. 28..... $13^{\circ} 35'$ 33,82			
May 13 34,54			
16 33,10			
A Ursæ Minoris R.			
Apr. 28..... $13^{\circ} 35'$ 33,91			
May 13 33,14			
16 31,93			

<b>Antares R.</b>	<b><math>\eta</math> Ophiuchi R.</b>	<b><math>\theta</math> Ophiuchi.</b>	<b><math>\xi</math> Draconis SP. R.</b>
July 13...116. 4. 12,65	May 29...105. 31. 10,28	June 13...114. 49. 54,59	Feb. 12...33. 6. 0,51
Aug. 3 14,68	June 13 11,96	14 53,67	Dec. 9 5. 59,21
<b><math>\eta</math> Draconis.</b>	<b><math>\epsilon</math> Ursæ Minoris.</b>	<b><math>\epsilon^s</math> Ophiuchi.</b>	<b><math>\theta</math> Herculis.</b>
May 28...28. 7. 19,85	Aug. 7...7. 42. 36,94	July 11...113. 49. 53,29	Aug. 24...52. 43. 26,49
June 10 20,37	8 37,52	Aug. 5 53,12	29 27,43
Aug. 7 20,16	Sept. 3 37,53	7 52,12	<b><math>\gamma^s</math> Sagittarii.</b>
<b><math>\eta</math> Draconis R.</b>	<b><math>\epsilon</math> Ursæ Minoris R.</b>	<b><math>\alpha</math> Ophiuchi.</b>	Aug. 8...120. 25. 1,80
May 28...28. 7. 20,12	Aug. 7...7. 42. 37,16	Jan. 15...77. 19. 6,25	<b>* R. 18<sup>b</sup>. 8<sup>m</sup>. 57<sup>s</sup>.</b>
June 10 18,05	8 37,25	29 4,01	Aug. 24...89. 2. 35,61
Aug. 7 18,49	Sept. 3 37,11	June 3 2,64	29 36,29
<b><math>\tau</math> Scorpii.</b>	<b><math>\Lambda</math> Ophiuchi (1st star).</b>	13 3,55	Sept. 3 35,01
July 10...117. 52. 36,24	Aug. 5...116. 21. 37,16	20 2,52	<b><math>\eta</math> Serpentis.</b>
11 34,12	8 35,54	July 13 6,06	June 20...92. 56. 1,48
<b><math>\eta</math> Herculis.</b>	<b><math>\Lambda</math> Ophiuchi (2nd star).</b>	<b><math>\alpha</math> Ophiuchi R.</b>	July 10 3,13
July 6...50. 46. 9,75	June 14...116. 21. 31,63	Jan. 15...77. 19. 5,24	11 2,07
31 9,44	Aug. 5 34,18	29 4,73	<b><math>\eta</math> Serpentis R.</b>
Aug. 7 10,25	8 32,03	June 3 4,33	June 20...92. 56. 3,34
<b><math>\eta</math> Herculis R.</b>	<b><math>\alpha</math> Herculis.</b>	13 5,03	July 10 2,52
July 6...50. 46. 10,85	June 20...75. 25. 16,30	20 4,96	11 3,41
31 10,16	Aug. 7 17,99	July 13 5,11	<b><math>\vee</math> Sagittarii.</b>
Aug. 7 9,06	24 18,38	<b><math>\beta</math> Ophiuchi.</b>	July 13...115. 30. 9,60
<b><math>\alpha</math> Ophiuchi.</b>	<b><math>\nu</math> Herculis R.</b>	Aug. 24...85. 21. 35,67	31 7,44
July 11 80. 22. 13,73	June 20 75. 25. 20,24	29 37,08	Aug. 8 6,80
Aug. 11 13,72	Aug. 7 19,86	Sept. 3 35,72	9 8,53
<b><math>\alpha</math> Ophiuchi R.</b>	24 20,18	<b>A.S.C. 2042.</b>	<b><math>\vee</math> Sagittarii R.</b>
July 11 80. 22. 15,85	<b><math>\zeta</math> Draconis.</b>	Aug. 24...121. 38. 21,79	July 13...115. 30. 6,94
Aug. 11 15,47	May 29 24. 5. 16,90	<b>* R. 17<sup>b</sup>. 41<sup>m</sup>. 15<sup>s</sup>.</b>	31 6,37
<b><math>\alpha</math> Ophiuchi R.</b>	June 10 17,18	Aug. 24...87. 59. 3,69	<b>* R. 18<sup>b</sup>. 20<sup>m</sup>. 21<sup>s</sup>.</b>
July 11 80. 22. 15,85	<b><math>\zeta</math> Draconis R.</b>	29 4,16	Aug. 7...71. 49. 50,31
Aug. 11 15,47	May 29 24. 5. 15,33	Sept. 3 3,40	8 49,68
<b><math>\alpha</math> Ophiuchi.</b>	June 10 15,90	<b>A.S.C. 2052.</b>	24 51,44
May 29...105. 31. 10,44	<b><math>\epsilon</math> Ophiuchi.</b>	July 11...120. 13. 42,57	Sept. 3 51,00
June 13 10,00	Aug. 24 90. 13. 31,54	Aug. 3 44,27	<b><math>\gamma</math> Ursæ Minoris.</b>
	Sept. 1 33,42	8 40,63	June 19...3. 24. 29,94
		<b><math>\xi</math> Draconis SP.</b>	25 30,69
		Feb. 12...33. 6. 1,63	
		Dec. 9 5. 59,50	



$\delta$ Ursæ Minoris continued.	$\alpha$ Lyrae continued.	$\epsilon$ Aquilæ.	$\beta$ Lyrae R. continued.
July 6.....3 . 24 . 31,71 8 31,01	Jan. 10.....51 . 21 . 40,80 15 39,68 26 41,20 29 40,65	Sept. 1.....91 . 7 . 27,41 3 25,48 5 26,28	Nov. 12.....56 . 49 . 6,14 27 8,35 28 8,72
Sept. 5 29,32 17 29,45	June 19 39,65	$\iota$ Aquilæ.	$\beta$ Lyrae (comes).
$\delta$ Ursæ Minoris R.	July 11 39,33 27 38,12	Sept. 15.....94 . 54 . 45,97 17 44,70 19 44,50	July 31.....56 . 49 . 47,37 Aug. 1 46,14 Sept. 15 47,26
June 19.....3 . 24 . 28,05 25 28,31	Aug. 4 39,75 8 39,99 9 40,34	* $\mathcal{R}$ . 18 <sup>h</sup> . 38 <sup>m</sup> . 48 <sup>s</sup> .	$\beta$ Lyrae (comes) R.
July 6 29,09 8 31,02	Sept. 5 40,29 17 39,35	July 31.....68 . 10 . 41,54	July 31.....56 . 49 . 46,71
Sept. 5 29,19 17 28,68	Oct. 20 39,57	Aug. 1 41,43 3 40,82 4 41,07 8 40,03	Aug. 1 46,11 Sept. 15 47,37
$\delta$ Ursæ Minoris SP.	Nov. 9 41,04 12 40,48 26 40,51 28 40,67	$\epsilon$ Lyrae.	O Herculis.
Feb. 12.....3 . 24 . 29,79	Dec. 2 40,51 3 40,95 9 39,79 15 41,24	Sept. 1.....50 . 29 . 34,37 5 35,96 12 36,21	June 29.....67 . 33 . 9,06 Aug. 4 8,94 11 9,18
Dec. 9 29,86	$\alpha$ Lyrae R.	$\epsilon$ Lyrae.	* $\mathcal{R}$ . 18 <sup>h</sup> . 48 <sup>m</sup> . 4 <sup>s</sup> .
$\delta$ Ursæ Minoris SP. R.	Jan. 5.....51 . 21 . 41,21 6 40,80 10 40,34 15 41,34 26 39,91 29 40,24	5 Lyrae.	Aug. 28.....92 . 0 . 0,61
Feb. 12.....3 . 24 . 30,73	June 19 40,27	Sept. 1.....50 . 33 . 1,12 5 2,18 12 1,87	Sept. 1 0,60 3.....91 . 59 . 58,91
Dec. 9 29,66	July 11 39,42 27 40,86	$\beta$ Lyrae.	$\epsilon$ Aquilæ.
* $\mathcal{R}$ . 18 <sup>h</sup> . 25 <sup>m</sup> . 1 <sup>s</sup> .	Aug. 4 40,00 8 39,51 9 39,56	June 25.....56 . 49 . 8,47	July 8.....75 . 8 . 35,82
Aug. 1.....70 . 13 . 27,56 3 28,43 4 28,62 8 27,63 9 27,98	Sept. 5 40,81 17 41,01	July 27 6,17 31 7,19	Aug. 4 36,96 9 37,82
Sept. 3 27,26	Oct. 20 41,13	Aug. 1 6,29 9 7,29 28 5,55	$\epsilon$ Aquilæ R.
* $\mathcal{R}$ . 18 <sup>h</sup> . 29 <sup>m</sup> . 23 <sup>s</sup> .	Nov. 9 40,80 12 39,87 26 41,16 28 40,48	Sept. 15 8,99 17 6,76 19 7,46	July 8.....75 . 8 . 37,60
Sept. 3.....90 . 26 . 16,45 12 17,01 15 17,65	Dec. 2 41,36 3 40,11 9 41,33 15 40,74	Nov. 12 8,70 27 8,65 28 7,72	Aug. 4 35,96 9 37,96
* $\mathcal{R}$ . 18 <sup>h</sup> . 30 <sup>m</sup> . 9 <sup>s</sup> .	* $\mathcal{R}$ . 18 <sup>h</sup> . 37 <sup>m</sup> . 59 <sup>s</sup> .	$\beta$ Lyrae R.	$\tau$ Sagittarii.
Aug. 24 .....38 . 23 . 25,25	Aug. 1.....68 . 12 . 29,28 3 30,00 4 30,72 8 29,65	June 25.....56 . 49 . 7,71	Aug. 9...117 . 53 . 46,84
Sept. 1 24,49	$\alpha$ Lyrae.	July 27 7,85 31 7,58	$\eta$ Lyrae.
* $\mathcal{R}$ . 18 <sup>h</sup> . 30 <sup>m</sup> . 48 <sup>s</sup> .	Jan. 5.....51 . 21 . 39,79 6 39,67	Aug. 1 7,02 9 8,50 28 6,31	June 19.....51 . 7 . 31,27 29 30,90
Aug. 24.....38 . 20 . 35,00		Sept. 15 6,13 17 8,31 19 8,09	July 6 32,16 Aug. 28 30,33
Sept. 1 34,47			

$\eta$ Lyrae R.	$\alpha$ Aquilæ.	$\Sigma$ 2652.	$\alpha$ Cygni.
June 19.....51. 7. 31,35 29 30,85	Feb. 23.....81. 32. 56,99 24 56,63 26 56,49	Aug. 22.....28. 23. 37,14 24 38,96 28 37,76	Feb. 10.....45. 17. 17,19 12 17,10 23 17,21 28 17,52
July 6 31,11	Mar. 5 57,62	3 Capricorni.	Mar. 1 17,83 3 18,16 5 17,96 9 18,08
Aug. 28 31,79	July 16 55,57	Aug. 22...102. 49. 16,35 24 14,94 28 16,67	July 15 16,52
$f$ Aquilæ.	$\alpha$ Aquilæ R.	$\alpha^1$ Capricorni.	Sept. 25 16,72
Aug. 28.....95. 42. 30,76	Feb. 23.....81. 32. 57,94 24 58,93 26 57,31	Aug. 5...102. 59. 49,32	Nov. 2 16,30 25 16,73
Sept. 1 31,81 5 29,68	Mar. 5 57,03	Sept. 12 48,52	$\alpha$ Cygni R.
Piazzi XIX. 85.	July 16 56,26	$\alpha^1$ Capricorni R.	Feb. 10.....45. 17. 18,54 12 18,20 23 18,65 28 18,54
Aug. 13.....94. 0. 54,41 28 56,91	$\beta$ Aquilæ.	Aug. 5...102. 59. 51,38	Mar. 1 18,32 3 18,19 5 16,64 9 17,77
Sept. 1 56,90	July 16.....83. 59. 15,21	Sept. 12 51,71	July 15 19,04
$\chi^1$ Sagittarii.	Aug. 1 14,60 28 14,68	$\alpha^2$ Capricorni.	Sept. 25 19,12
July 13...114. 48. 42,52 14 41,18	Sept. 17 15,03	Aug. 5...103. 2. 5,43	Nov. 2 18,00 25 19,49
Aug. 9 43,29	Oct. 4 15,66	Sept. 12 5,50	$\eta$ Cephei.
$\lambda^1$ Sagittarii.	Nov. 27 16,59	$\alpha^3$ Capricorni R.	Aug. 7.....28. 46. 52,59
July 13...115. 13. 47,97 14 45,95	$\beta$ Aquilæ R.	Aug. 5...103. 2. 7,80	Sept. 25 50,33
$P$ Aquilæ.	July 16.....83. 59. 18,00	Sept. 12 6,06	$\eta$ Cephei R.
Aug. 28 ...94. 59. 54,69	Aug. 1 16,46 28 17,01	$\beta^2$ Capricorni.	Aug. 7.....28. 46. 49,69
Sept. 5 54,56 15 54,85	Sept. 17 17,01	Aug. 11...103. 16. 50,66	Sept. 25 51,88
$\gamma$ Aquilæ.	Oct. 4 16,35	$\gamma$ Cygni.	$\eta$ Cephei SP.
Aug. 28 79. 46. 17,38	Nov. 27 16,69	Aug. 27.... 50. 15. 5,70	Feb. 7. 28. 46. 52,36 11 52,33
Sept. 17 16,63	$\epsilon$ Sagittarii.	$\gamma$ Cygni R.	$\eta$ Cephei SP. R.
Nov. 27 19,72	Aug. 11...118. 8. 50,52	Aug. 27.....50. 15. 7,50	Feb. 7. 28. 46. 51,01 11 50,99
Dec. 3 17,63	$\rho$ Draconis.	$\epsilon$ Capricorni.	Piazzi XX. 429.
$\gamma$ Aquilæ R.	July 16 22. 34. 56,82	July 15...108. 43. 49,47 16 46,84	Sept. 8.....40. 9. 23,80 12 23,86 15 23,23
Aug. 28 79. 46. 18,27	Aug. 5 57,82 22 54,53	$\epsilon$ Capricorni.	
Sept. 17 17,62	$\rho$ Draconis R.	Nov. 2...108. 41. 48,79	
Nov. 27 17,81	July 16 22. 34. 56,38		
Dec. 3 17,36	Aug. 5 54,15 22 56,55		

61 <sup>1</sup> Cygni.	$\alpha$ Equulei R. <i>continued.</i>	$\alpha$ Cephei SP.	$\kappa$ Capricorni.
Sept. 3.....52 . 2 . 1,18 5           2 . 0,46 8           1 . 59,45 15          2 . 1,13 25          1 . 59,68 29          1 . 59,94	Sept. 25.....85 . 24 . 38,08 Nov. 2           (40,77)	Mar. 7.....28 . 5 . 25,60	Aug. 26...109 . 35 . 28,04 Sept. 5           27,17 8           28,88
$\chi^8$ Capricorni.	* $\mathcal{R}$ . 21 <sup>h</sup> . 9 <sup>m</sup> . 0 <sup>s</sup> .	$\alpha$ Cephei SP. R.	$\epsilon$ Pegasi.
Nov. 9...111 . 11 . 37,53 26           36,77 27           38,94	Aug. 14.....76 . 51 . 41,61 Sept. 3           41,26 5           40,80	Mar. 7.....28 . 5 . 25,24	Sept. 11.....80 . 51 . 19,13 25           16,98 Oct. 6           17,27 Nov. 20          19,94
* $\mathcal{R}$ . 21 <sup>h</sup> . 1 <sup>m</sup> . 9 <sup>s</sup> .	$\iota$ Capricorni.	$\beta$ Aquarii.	$\epsilon$ Pegasi R.
Sept. 3.....60 . 25 . 23,07 15           23,60 25           22,63	Sept. 8...107 . 30 . 38,54	Aug. 13.....96 . 16 . 16,03 Sept. 3           14,62 Nov. 26          16,41	Sept. 11.....80 . 51 . 18,37 25           19,75 Oct. 6           19,47 Nov. 20          18,47
* $\mathcal{R}$ . 21 <sup>h</sup> . 2 <sup>m</sup> . 40 <sup>s</sup> .	$\alpha$ Cephei.	$\beta$ Aquarii R.	$\delta$ Capricorni.
Sept. 5.....25 . 1 . 46,82 8           46,97	Feb. 23.....28 . 5 . 26,41 28           26,04 Mar. 6           27,30 9           26,25 Apr. 24          27,57 July 15          26,12 16           27,39 Aug. 13          26,66 14           27,41 21           29,26 Sept. 5          26,66 Oct. 6          25,06 Nov. 2          25,52 9           26,05 26           24,97	Sept. 3           16,16 Nov. 26          17,79	Aug. 13...106 . 50 . 56,73 Oct. 6           55,10 7           56,25 Nov. 2           59,09 9           59,28
$\Sigma$ 2776 (preceding star).	$\alpha$ Cephei R.	$\beta$ Cephei.	$\alpha$ Aquarii.
Sept. 3...101 . 0 . 30,57 8           29,46 15          30,77	Feb. 23.....28 . 5 . 26,52 28           26,62 Mar. 6           25,70 9           25,94 Apr. 24          25,16 July 15          26,15 16           25,26 Aug. 13          25,59 14           25,16 21           25,07 Sept. 5          25,69 Oct. 6          25,10 Nov. 2          25,86 9           25,61 26           26,96	Nov. 20          26,52	Aug. 21.....91 . 5 . 38,21 26           37,20 27           37,41 Nov. 26          38,23
$\zeta$ Capricorni.	$\alpha$ Cephei R.	$\beta$ Cephei R.	$\alpha$ Aquarii R.
July 15...105 . 49 . 53,24 16           52,70 Oct. 6          53,76	Feb. 23.....28 . 5 . 26,52 28           26,62 Mar. 6           25,70 9           25,94 Apr. 24          25,16 July 15          26,15 16           25,26 Aug. 13          25,59 14           25,16 21           25,07 Sept. 5          25,69 Oct. 6          25,10 Nov. 2          25,86 9           25,61 26           26,96	Apr. 24.....20 . 8 . 25,32 Aug. 13          24,85 14           25,76 21           26,48 Sept. 3          25,36 8           26,36 11           26,49 Nov. 20          26,25	Aug. 21.....91 . 5 . 39,92 26           38,78 27           39,10 Nov. 26          40,14
$\alpha$ Equulei.	$\alpha$ Equulei R.	$\epsilon$ Capricorni.	$\iota$ Aquarii.
July 9.....85 . 24 . 35,65 Aug. 13          34,15 Sept. 25          33,07 Nov. 2          (42,51)	July 9.....85 . 24 . 35,14 Aug. 13          33,79	July 15...110 . 10 . 41,76 16           43,61	July 16...104 . 38 . 33,56 Aug. 13          30,79 Oct. 6          32,72
$\alpha$ Equulei R.	$\alpha$ Equulei R.	$\gamma$ Capricorni.	$\theta$ Aquarii.
July 9.....85 . 24 . 35,14 Aug. 13          33,79	July 9.....85 . 24 . 35,14 Aug. 13          33,79	Sept. 8...107 . 22 . 48,94 10           50,78 11           50,62 Nov. 2          51,51 9           52,27	July 16.....98 . 34 . 37,86 Aug. 21          36,20

$\epsilon$ Cephei.	$\iota$ Cephei. R.	$\psi^1$ Aquarii.	$\lambda$ Piscium.
Aug. 26.....33. 45. 8,06 27 8,80	Aug. 15.....24. 38. 23,94 Nov. 4 23,21	Sept. 11.....99. 57. 29,25 17 26,43 19 26,93	Aug. 14.....89. 5. 59,05 15 58,59 Oct. 8 58,76 9 59,48 Dec. 3 58,28
$\epsilon$ Cephei R.	$\alpha$ Aquarii.	$\gamma$ Piscium.	$n$ Piscium.
Aug. 26.....33. 45. 7,78 27 7,87	Aug. 18.....98. 25. 42,27 14 44,41 Oct. 7 43,43 Dec. 2 43,08	Aug. 14.....87. 35. 27,50 15 26,32 Nov. 4 27,20	Sept. 12.....93. 38. 59,95 17 58,87 19 39. 1,16
$\zeta$ Aquarii (North Star).		$\eta$ Aquarii.	$\delta$ Apparatus Sculptoris.
Aug. 26.....90. 50. 8,39 27 7,83 Sept. 11 8,43		Sept. 11.....95. 59. 50,35 17 48,37 19 49,30	Sept. 12...119. 0. 49,69 17 46,08 19 50,71
$\zeta$ Aquarii (South Star).	$\pi$ Piscium.	$\kappa^1$ Piscium.	$p$ Piscium.
Aug. 26.....90. 50. 11,31 27 10,53 Sept. 11 11,21	Nov. 4....90. 40. 18,83	Oct. 8.....89. 37. 9,50 11 9,03 Dec. 2 9,09 3 8,76	Sept. 12....94. 26. 35,14 17 34,46 19 35,34
$\sigma$ Aquarii.	$\alpha$ Pegasi.	$\gamma$ Cephei.	$\omega$ Piscium.
Nov. 4.....101. 29. 39,77 9 38,71	Apr. 24....75. 39. 15,14 Aug. 15 13,05 Nov. 28 13,91 Dec. 3 12,49	Aug. 15.....13. 15. 37,35 Dec. 2 35,98	Sept. 11.....84. 1. 19,54 12 21,69 19 19,95
$\eta$ Aquarii.	$\alpha$ Pegasi R.	$\gamma$ Cephei R.	$q$ Piscium.
Aug. 13.....90. 56. 22,25 Oct. 7 23,12	Apr. 24....75. 39. 14,68 Aug. 15 15,65 Nov. 28 15,11 Dec. 3 16,25	Aug. 15.....13. 15. 37,01 Dec. 2 37,86	Sept. 12 93. 55. 3,11 17 2,02 19 3,34
$\theta$ Aquarii.	$\phi$ Aquarii.	$\gamma$ Cephei SP.	$\star$ Al. 23 <sup>h</sup> . 53 <sup>m</sup> . 42 <sup>s</sup> .
Dec. 2....95. 3. 2,64	Sept. 11....96. 54. 37,31 17 34,36 19 35,14	Apr. 6 13. 15. 37,88	Oct. 9 25. 26. 15,40 10 17,15
$\iota$ Cephei.		$\gamma$ Cephei SP. R.	
Aug. 15 24. 38. 23,22 Nov. 4 24,50		Apr. 6....13. 15. 37,96	

CATALOGUE of the CONCLUDED MEAN NORTH POLAR DISTANCES, JAN. 1, 1840;  
with the ANNUAL VARIATIONS.

(The N.P.D. have been corrected for the discordance of Zenith Points, and for the Error of the Assumed  
Co-latitude, in the manner explained in the Introduction.)

Name of Star.	Number of Obser- vations.	Approximate Mean R.A. Jan. 1, 1840.	Mean N.P.D. Jan. 1, 1840.	Annual Variation.	Name of Star.	Number of Obser- vations.	Approximate Mean R.A. Jan. 1, 1840.	Mean N.P.D. Jan. 1, 1840.	Annual Variation.
$\alpha$ Andromedæ.....	1	<i>h. m. s.</i> 0. 0. 8	<i>° ′ ″</i> 61. 47. 34,76	-20,056	$\alpha$ Persei.....	9	<i>h. m. s.</i> 3. 12. 56	<i>° ′ ″</i> 40. 42. 51,41	-13,357
$\alpha$ Andromedæ R.....	1		33,98		$\alpha$ Persei R.....	9		51,59	
$\Sigma$ 2.....	3	0. 0. 38	11. 10. 28,14	-20,056	$g$ Arietis.....	4	3. 14. 52	65. 50. 51,12	-13,232
B Piscium.....	2	0. 6. 45	82. 4. 3,80	-20,047	7 Tauri.....	3	3. 24. 59	66. 4. 39,34	-12,555
$d$ Piscium.....	3	0. 12. 22	82. 41. 55,10	-20,027	$\epsilon$ Eridani.....	1	3. 25. 24	100. 0. 14,38	-12,526
10 Ceti.....	3	0. 18. 25	90. 56. 11,25	-19,991	$\epsilon$ Eridani R.....	1		14,43	
$\alpha$ Cassiopeiæ.....	4	0. 31. 28	34. 20. 27,79	-19,867	9 Tauri.....	3	3. 27. 34	67. 19. 24,79	-12,377
$\alpha$ Cassiopeiæ R.....	4		27,79		F Eridani.....	3	3. 29. 0	108. 0. 3,31	-12,282
$\eta$ Cassiopeiæ.....	3	0. 39. 28	33. 2. 4,97	-19,759	$g$ Pleiadum.....	3	3. 35. 18	66. 13. 9,81	-11,838
$\delta$ Piscium.....	2	0. 40. 23	83. 17. 12,05	-19,745	$b$ Pleiadum.....	3	3. 35. 23	66. 23. 43,64	-11,832
36 Andromedæ.....	3	0. 46. 25	67. 14. 21,70	-19,646	Piazzi III. 135.....	3	3. 36. 7	66. 10. 14,13	-11,778
$\epsilon$ Piscium.....	6	0. 54. 39	82. 58. 21,95	-19,489	$c$ Pleiadum.....	3	3. 36. 18	66. 8. 15,96	-11,767
Polaris.....	19	1. 2. 11	1. 32. 38,20	-19,319	$\eta$ Tauri.....	3	3. 37. 59	66. 23. 43,34	-11,646
Polaris R.....	19		37,70		$f$ Pleiadum.....	3	3. 39. 40	66. 26. 29,78	-11,527
Polaris SP.....	16		38,14		$h$ Pleiadum.....	3	3. 39. 40	66. 21. 29,09	-11,526
Polaris SP. R.....	16		38,16		$A^1$ Tauri.....	4	3. 55. 15	68. 21. 39,63	-10,391
$\xi$ Andromedæ.....	3	1. 12. 57	45. 18. 42,81	-19,048	Aldebaran.....	6	4. 26. 45	73. 49. 5,66	-7,935
$\Sigma$ 115.....	3	1. 13. 14	32. 41. 32,65	-19,041	Aldebaran R.....	6		6,42	
$\delta$ Cassiopeiæ.....	2	1. 15. 24	30. 35. 55,85	-18,980	A.S.C. 552. SP.....	1	4. 38. 11	23. 56. 22,02	-7,017
$\delta$ Cassiopeiæ R.....	2		57,29		A.S.C. 552. SP. R....	1		23,54	
* (Mag. 7).....	3	1. 16. 5	55. 6. 11,70	-18,958	$\epsilon$ Aurigæ.....	2	4. 46. 35	57. 5. 38,59	-6,315
* (Mag. 8,9).....	3	1. 17. 55	33. 32. 7,32	-18,906	$\epsilon$ Aurigæ.....	2	4. 50. 30	46. 25. 14,72	-5,989
* (Mag. 8).....	3	1. 21. 49	56. 39. 16,29	-18,791	$\epsilon$ Aurigæ R.....	2		13,64	
* (Mag. 8).....	2	1. 21. 49	33. 37. 56,11	-18,788	$\epsilon$ Tauri.....	2	4. 53. 32	68. 38. 41,21	-5,735
$\eta$ Piscium.....	3	1. 22. 56	75. 28. 51,97	-18,758	$\beta$ Eridani.....	2	4. 59. 59	95. 17. 54,10	-5,192
* (Mag. 7,8).....	3	1. 24. 16	77. 39. 48,64	-18,713	$\beta$ Eridani R.....	2		54,70	
* (Mag. 7,8).....	3	1. 24. 39	60. 26. 3,65	-18,700	Capella.....	11	5. 4. 53	44. 10. 21,74	-4,774
$\nu$ Andromedæ.....	3	1. 27. 26	49. 23. 51,43	-18,614	Capella R.....	11		22,25	
* (Mag. 7).....	3	1. 27. 44	57. 57. 57,39	-18,603	Rigel.....	2	5. 6. 51	98. 23. 29,27	-4,607
* (Mag. 7,8).....	3	1. 33. 9	59. 40. 19,63	-18,422	Rigel R.....	2		29,44	
* (Mag. 8).....	2	1. 41. 20	36. 55. 43,53	-18,127	$\beta$ Tauri.....	3	5. 16. 11	61. 32. 4,67	-3,808
$\epsilon$ Cassiopeiæ.....	1	1. 42. 57	27. 7. 18,13	-18,068	$\beta$ Tauri R.....	3		4,77	
$\epsilon$ Cassiopeiæ R.....	1		18,97		$\zeta$ Orionis.....	3	5. 32. 41	92. 1. 57,68	-2,385
$\alpha$ Trianguli.....	3	1. 43. 59	61. 12. 13,71	-18,027	31 Camelopardi SP..	1	5. 40. 38	30. 9. 27,54	-1,693
$\beta$ Arietis.....	2	1. 45. 49	69. 58. 37,07	-17,956	31 Camelop. SP. R..	1		29,23	
$\alpha$ Arietis.....	8	1. 53. 10	67. 17. 50,05	-17,447	$C$ Tauri.....	2	5. 43. 16	62. 25. 57,58	-1,469
$\alpha$ Arietis R.....	8		50,09		$\delta$ Aurigæ SP.....	1	5. 46. 21	35. 44. 8,80	-1,194
$\iota$ Trianguli.....	2	2. 3. 6	60. 27. 1,81	-17,232	$\delta$ Aurigæ SP. R.....	1		10,76	
$\theta^1$ Arietis.....	4	2. 9. 14	70. 50. 32,47	-16,951	$\kappa$ Aurigæ.....	2	6. 5. 11	60. 27. 0,63	+0,454
* (Mag. 7,8).....	3	2. 13. 9	70. 14. 51,79	-16,765	$\Sigma$ 941.....	1	6. 27. 22	48. 17. 25,19	+2,401
$\psi$ Arietis.....	4	2. 22. 2	73. 0. 26,49	-16,326	$\epsilon$ Geminorum.....	2	6. 34. 5	64. 43. 1,58	+2,972
A.S.C. 268.....	3	2. 27. 19	83. 52. 49,59	-16,053	$\epsilon$ Geminorum R.....	2		1,31	
30 Arietis.....	1	2. 27. 44	66. 3. 8,81	-16,032	$\zeta$ Geminorum.....	1	6. 54. 37	69. 12. 5,60	+4,734
A.S.C. 271.....	2	2. 27. 47	66. 3. 11,50	-16,029	A.S.C. 874. SP.....	4	6. 57. 0	7. 18. 11,75	+4,937
$\nu$ Arietis.....	1	2. 29. 44	68. 44. 3,17	-15,928	A.S.C. 874. SP. R....	4		10,83	
$\theta$ Persei.....	5	2. 33. 18	41. 27. 11,77	-15,734	$\tau$ Geminorum.....	2	7. 0. 57	59. 29. 56,64	+5,271
$\theta$ Persei R.....	2		11,34		$\tau$ Geminorum R.....	2		57,66	
$\mu$ Arietis.....	3	2. 33. 21	70. 40. 27,83	-15,731	$\delta$ Geminorum.....	3	7. 10. 34	67. 43. 44,64	+6,080
$\pi$ Ceti.....	3	2. 36. 30	104. 32. 23,35	-15,559	$\epsilon$ Geminorum.....	1	7. 15. 47	61. 53. 26,49	+6,502
$\pi$ Ceti R.....	1		23,47		$\epsilon$ Canis Minoris.....	1	7. 16. 54	80. 24. 51,59	+6,604
$\eta$ Persei.....	3	2. 39. 4	34. 46. 26,33	-15,416	$\epsilon$ Canis Minoris R....	1		50,12	
$\pi$ Arietis.....	3	2. 40. 22	73. 12. 18,86	-15,346	Castor.....	3	7. 24. 23	57. 46. 2,77	+7,221
$\Sigma$ 314.....	3	2. 41. 34	37. 39. 57,29	-15,269	Castor R.....	3		2,35	
$\epsilon$ Arietis.....	3	2. 50. 4	69. 18. 4,50	-14,786	Procyon.....	6	7. 30. 55	84. 22. 11,75	+8,733
$\alpha$ Ceti.....	2	2. 53. 55	86. 32. 30,88	-14,551	Procyon R.....	6		12,12	
$\alpha$ Ceti R.....	2		30,79		Pollux.....	7	7. 35. 31	61. 35. 35,50	+8,122
52 Arietis.....	3	2. 56. 4	65. 22. 20,66	-14,423	Pollux R.....	7		36,17	
A.S.C. 340.....	3	2. 57. 33	41. 0. 14,37	-14,332	$\phi$ Geminorum.....	1	7. 43. 42	62. 49. 34,22	+8,768
$\beta$ Persei.....	5	2. 57. 46	49. 39. 57,27	-14,319	6 Cancri.....	1	7. 53. 41	61. 45. 46,04	+9,546
$\beta$ Persei R.....	5		56,48		55 Camelopardi.....	2	7. 56. 47	21. 3. 52,00	+9,774
$\delta$ Arietis.....	4	3. 2. 30	70. 52. 59,23	-14,026	55 Camelopardi R....	2		52,49	

CATALOGUE of the Concluded Mean North Polar Distances, &c. *continued.*

Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1840.	Mean N.P.D. Jan. 1, 1840.	Annual Variation.	Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1840.	Mean N.P.D. Jan. 1, 1840.	Annual Variation.
53 Camelopardi SP.	2	h. m. s. 7. 56. 47	21. 3. 52.45	+ 9.774	ε Virginis	1	h. m. s. 12. 54. 13	78. 10. 45.34	+ 19.498
55 Camelop. SP. R.	1		53.10		ε Virginis R.	1		44.12	
β Cancri	2	8. 7. 50	80. 19. 34.70	+ 10.615	θ Virginis	2	13. 1. 40	94. 40. 58.32	+ 19.334
β Cancri R.	2		35.31		53 Virginis	1	13. 3. 33	105. 20. 0.16	+ 19.289
ο Ursæ Majoris	4	8. 16. 54	28. 45. 16.14	+ 11.280	Spica	4	13. 16. 46	100. 19. 26.23	+ 18.940
ο Ursæ Majoris R.	4		16.16		Spica R.	4		26.22	
ο Ursæ Majoris SP.	2		15.59		κ Virginis	2	13. 41. 11	107. 20. 2.51	+ 18.135
ο Ursæ Maj. SP. R.	2		15.05		η Ursæ Majoris	5	13. 41. 14	39. 53. 9.19	+ 18.130
θ Cancri	2	8. 22. 28	71. 22. 11.60	+ 11.680	η Ursæ Majoris R.	5		11.40	
κ' Ursæ Majoris	3	8. 26. 9	25. 7. 15.55	+ 11.940	η Bootis	3	13. 47. 4	70. 47. 51.05	+ 17.906
κ' Ursæ Majoris R.	3		15.71		η Bootis R.	3		51.33	
κ' Ursæ Majoris SP.	2		13.57		τ Virginis	1	13. 53. 30	87. 40. 40.40	+ 17.646
κ' Ursæ Maj. SP. R.	2		15.69		τ Virginis R.	1		39.60	
η Hydræ	1	8. 34. 51	86. 1. 52.73	+ 12.543	α Draconis	6	14. 0. 3	24. 51. 28.15	+ 17.367
η Hydræ R.	1		52.13		α Draconis R.	6		28.25	
δ Cancri	3	8. 35. 35	71. 15. 44.20	+ 12.593	α Draconis SP.	2		26.73	
α' Cancri	1	8. 49. 44	77. 31. 37.92	+ 13.333	α Draconis SP. R.	2		26.43	
α' Cancri R.	1		35.44		κ Virginis	2	14. 4. 22	99. 31. 30.89	+ 17.175
α Ursæ Majoris	2	8. 52. 40	42. 12. 57.42	+ 13.721	Arcturus	17	14. 8. 22	69. 58. 53.59	+ 18.950
α Ursæ Majoris R.	2		57.09		Arcturus R.	17		53.55	
α Ursæ Majoris SP.	1	9. 18. 49	26. 14. 38.11	+ 15.297	λ Virginis	1	14. 10. 28	102. 37. 50.45	+ 16.895
α Ursæ Maj. SP. R.	1		38.99		λ Ursæ Minoris	3	14. 27. 57	13. 35. 33.98	+ 16.020
α Hydræ	1	9. 19. 44	97. 58. 5.32	+ 15.350	λ Ursæ Minoris R.	3		33.68	
α Hydræ R.	1		5.80		ε Bootis	3	14. 38. 0	62. 14. 51.69	+ 15.474
ο Leonis	1	9. 49. 37	76. 47. 40.91	+ 16.894	ε Bootis R.	3		51.47	
Regulus	3	9. 59. 51	77. 15. 11.34	+ 17.363	ε' Libræ	1	14. 48. 5	100. 45. 33.36	+ 14.899
Regulus R.	3		12.70		ε' Libræ R.	1		32.53	
λ Ursæ Majoris	2	10. 7. 25	46. 17. 21.02	+ 17.684	β Ursæ Minoris	14	14. 51. 15	15. 11. 25.99	+ 14.713
λ Ursæ Majoris R.	2		22.12		β Ursæ Minoris R.	14		25.60	
ρ Leonis	2	10. 24. 23	79. 52. 19.13	+ 18.334	β Ursæ Minoris SP.	4		26.63	
μ Ursæ Majoris	1	10. 24. 48	32. 5. 46.34	+ 18.350	β Ursæ Min. SP. R.	4		26.16	
μ Ursæ Majoris R.	1		44.22		β Bootis	3	14. 55. 55	48. 58. 30.53	+ 14.432
μ Ursæ Majoris SP.	2		44.16		β Bootis R.	3		29.47	
μ Ursæ Maj. SP. R.	2		44.00		α Coronæ Borealis	4	15. 27. 55	62. 44. 34.37	+ 12.352
ι Leonis	1	10. 40. 50	78. 36. 34.03	+ 18.871	α Coronæ Borealis R.	4		33.79	
ο Hydræ et Crateris	1	10. 41. 44	105. 21. 26.15	+ 18.897	α Serpentis	2	15. 36. 23	83. 3. 59.06	+ 11.759
ο Hydræ et Crat. R.	1		26.38		α Serpentis R.	2		58.90	
ο Ursæ Majoris	16	10. 53. 48	27. 23. 12.48	+ 19.226	κ Scorpii	3	15. 49. 11	115. 38. 50.42	+ 10.836
α Ursæ Majoris R.	16		12.30		ζ Ursæ Minoris	2	15. 49. 55	11. 42. 58.61	+ 10.784
ο Ursæ Majoris SP.	6		11.85		ζ Ursæ Minoris R.	2		60.75	
ο Ursæ Maj. SP. R.	6		11.78		ζ Ursæ Minoris SP.	2		60.00	
χ Leonis	3	10. 56. 46	81. 48. 0.73	+ 19.294	ζ Ursæ Min. SP. R.	2		59.15	
ρ' Leonis	1	11. 5. 34	89. 11. 59.40	+ 19.493	ε Scorpii	3	15. 50. 55	112. 9. 38.06	+ 10.716
δ Leonis	3	11. 5. 35	68. 36. 1.52	+ 19.494	α Scorpii	3	16. 11. 28	115. 12. 8.82	+ 9.147
δ Leonis R.	3		2.14		Antares	3	16. 19. 36	116. 4. 12.21	+ 8.505
q Leonis	2	11. 9. 3	87. 6. 38.30	+ 19.562	Antares R.	2		12.91	
λ Draconis	1	11. 21. 50	19. 47. 10.64	+ 19.778	η Draconis	3	16. 21. 50	28. 7. 19.79	+ 8.330
λ Draconis R.	1		12.17		η Draconis R.	3		19.41	
λ Draconis SP.	2		11.18		τ Scorpii	2	16. 25. 56	117. 52. 36.10	+ 8.003
λ Draconis SP. R.	3		10.82		η Herculis	3	16. 37. 24	50. 16. 10.29	+ 7.073
β Leonis	3	11. 40. 54	74. 32. 0.29	+ 19.986	η Herculis R.	3		9.72	
β Leonis R.	3		1.11		α Ophiuchi	2	16. 50. 6	80. 22. 15.28	+ 6.023
γ Ursæ Majoris	7	11. 45. 23	35. 24. 55.97	+ 20.015	α Ophiuchi R.	2		15.19	
γ Ursæ Majoris R.	7		55.87		η Ophiuchi	2	17. 1. 12	105. 31. 11.14	+ 5.089
γ Ursæ Majoris SP.	2		56.19		η Ophiuchi R.	2		10.58	
γ Ursæ Maj. SP. R.	2		55.15		ε Ursæ Minoris	3	17. 2. 35	7. 42. 56.81	+ 4.976
δ Ursæ Majoris SP.	1	12. 7. 28	32. 4. 39.80	+ 20.045	ε Ursæ Minoris R.	3		37.87	
δ Ursæ Maj. SP. R.	1		40.35		α Ophiuchi (1st star)	2	17. 5. 31	116. 21. 37.28	+ 4.723
γ Corvi	1	12. 7. 35	106. 49. 9.69	+ 20.045	α Ophiuchi (2d star)	3		116. 21. 33.54	
γ Corvi R.	1		9.78		α Herculis	3	17. 7. 21	75. 25. 18.17	+ 4.565
η Virginis	1	12. 11. 43	89. 46. 37.69	+ 20.030	α Herculis R.	3		19.66	
η Virginis	2	12. 25. 32	98. 34. 6.41	+ 19.982	ζ Draconis	2	17. 8. 20	24. 5. 16.62	+ 4.483
ο Draconis	1	12. 26. 36	19. 19. 44.88	+ 19.921	ζ Draconis R.	2		16.22	
α Draconis R.	1		44.49		β Ophiuchi	2	17. 8. 24	90. 15. 33.09	+ 4.477
ο Draconis SP.	2		44.32		β Ophiuchi	3	17. 12. 11	114. 49. 55.36	+ 4.154
ο Draconis SP. R.	2		44.15		ε' Ophiuchi	3	17. 21. 40	113. 49. 53.87	+ 3.339
γ' Virginis	2	12. 33. 34	90. 34. 14.78	+ 19.841	ο Ophiuchi	6	17. 27. 31	77. 19. 4.76	+ 2.832
ο Ursæ Majoris	3	12. 46. 57	35. 10. 13.32	+ 19.636	ο Ophiuchi R.	6		4.53	
ο Ursæ Majoris R.	3		12.56		β Ophiuchi	3	17. 35. 34	85. 21. 36.68	+ 2.134

CATALOGUE of the Concluded Mean North Polar Distances, &c. *continued.*

Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1840.	Mean N.P.D. Jan. 1, 1840.	Annual Variation.	Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1840.	Mean N.P.D. Jan. 1, 1840.	Annual Variation.
A.S.C. 2042.....	1	<i>h. m. s.</i> 17. 38. 47	<i>° ' "</i> 121. 38. 22,70	+ 1,860	<i>α</i> Cygni.....	12	<i>h. m. s.</i> 20. 35. 59	<i>° ' "</i> 45. 17. 17,65	- 12,621
* (Mag. 8).....	3	17. 41. 15	87. 59. 4,32	+ 1,639	<i>α</i> Cygni R.....	12		18,19	
A.S.C. 2052.....	3	17. 48. 49	120. 13. 42,73	+ 0,978	<i>η</i> Cephei.....	2	20. 42. 0	28. 46. 51,14	- 13,025
<i>ξ</i> Draconis SP.....	2	17. 50. 45	33. 5. 60,29	+ 0,809	<i>η</i> Cephei R.....	2		51,29	
<i>ξ</i> Draconis SP. R.....	2		59,96		<i>η</i> Cephei SP.....	2		52,09	
<i>θ</i> Herculis.....	2	17. 50. 46	52. 43. 27,47	+ 0,811	<i>η</i> Cephei SP. R.....	2		51,08	
<i>γ</i> <sup>8</sup> Sagittarii.....	1	17. 55. 32	120. 25. 2,71	+ 0,391	Piazzi XX. 429.....	3	20. 53. 23	40. 9. 24,49	- 13,766
* (Mag. 7,8).....	3	18. 8. 57	89. 2. 36,22	- 0,783	61 <sup>1</sup> Cygni.....	6	20. 59. 44	52. 2. 0,81	- 17,463
<i>η</i> Serpentis.....	3	18. 13. 2	92. 56. 2,94	- 1,140	<i>χ</i> <sup>3</sup> Capricorni.....	3	21. 0. 24	111. 11. 38,68	- 14,206
<i>η</i> Serpentis R.....	3		2,56		* (Mag. 9).....	3	21. 1. 9	60. 25. 23,71	- 14,252
<i>λ</i> Sagittarii.....	4	18. 18. 6	115. 30. 9,02	- 1,582	* (Mag. 9,10).....	2	21. 2. 40	25. 1. 46,49	- 14,346
<i>λ</i> Sagittarii R.....	2		5,91		<i>δ</i> Equulei.....	3	21. 6. 41	80. 38. 16,33	- 14,589
* (Mag. 8,9).....	4	18. 20. 21	71. 40. 51,36	- 1,777	<i>Σ</i> 2776 (prec. star) ..	3	21. 6. 45	101. 0. 31,16	- 14,593
<i>δ</i> Ursæ Minoris.....	6	18. 23. 55	3. 24. 29,85	- 2,077	<i>ε</i> Capricorni.....	3	21. 6. 53	105. 49. 54,15	- 14,599
<i>δ</i> Ursæ Minoris R.....	6		29,74		<i>α</i> Equulei.....	3	21. 7. 49	85. 24. 34,82	- 14,657
<i>δ</i> Ursæ Minoris SP.....	2		30,24		<i>α</i> Equulei R.....	3		35,32	
<i>δ</i> Ursæ Min. SP. R.....	2		29,61		* (Mag. 9,10).....	3	21. 9. 0	76. 51. 41,81	- 14,728
* (Mag. 8,9).....	6	18. 25. 1	70. 13. 28,55	- 2,183	<i>ε</i> Capricorni.....	1	21. 13. 20	107. 30. 39,47	- 14,982
* (Mag. 7,8).....	3	18. 29. 23	90. 26. 17,65	- 2,564	<i>α</i> Cephei.....	15	21. 14. 45	28. 5. 26,24	- 15,063
* (Mag. 8,9).....	2	18. 30. 9	38. 23. 24,97	- 2,631	<i>α</i> Cephei R.....	15		26,28	
* (Mag. 7,8).....	2	18. 30. 48	38. 20. 34,84	- 2,687	<i>α</i> Cephei SP.....	1		25,34	
<i>α</i> Lyrae.....	23	18. 31. 31	51. 21. 40,64	- 2,751	<i>α</i> Cephei SP. R.....	1		25,32	
<i>α</i> Lyrae R.....	23		40,22		<i>β</i> Aquarii.....	3	21. 23. 8	96. 16. 16,50	- 15,540
* (Mag. 8).....	4	18. 37. 59	68. 12. 30,55	- 3,310	<i>β</i> Aquarii R.....	3		16,42	
<i>δ</i> Aquilæ.....	3	18. 38. 13	91. 7. 27,03	- 3,329	<i>β</i> Cephei.....	8	21. 26. 34	20. 8. 26,45	- 15,727
<i>ι</i> Aquilæ.....	3	18. 38. 41	94. 54. 45,84	- 3,369	<i>β</i> Cephei R.....	8		26,51	
* (Mag. 8).....	5	18. 38. 48	68. 10. 41,62	- 3,379	<i>ε</i> Capricorni.....	2	21. 28. 7	110. 10. 43,62	- 15,810
<i>ε</i> Lyrae.....	3	18. 39. 2	50. 29. 35,99	- 3,399	<i>γ</i> Capricorni.....	5	21. 31. 13	107. 22. 51,74	- 15,976
<i>δ</i> Lyrae.....	3	18. 39. 5	50. 33. 2,20	- 3,404	<i>κ</i> Capricorni.....	3	21. 33. 43	109. 35. 28,96	- 16,107
<i>β</i> Lyrae.....	12	18. 44. 10	56. 49. 8,00	- 3,843	<i>ε</i> Pegasi.....	4	21. 36. 20	80. 51. 18,88	- 16,244
<i>β</i> Lyrae R.....	12		7,17		<i>ε</i> Pegasi R.....	4		18,65	
<i>β</i> Lyrae (comes).....	3	18. 44. 12	56. 49. 47,49	- 3,843	<i>δ</i> Capricorni.....	5	21. 38. 12	106. 50. 58,21	- 16,336
<i>β</i> Lyrae (comes) R.....	3		46,34		<i>α</i> Aquarii.....	4	21. 57. 34	91. 5. 38,40	- 17,262
<i>θ</i> Herculis.....	3	18. 48. 0	67. 33. 9,70	- 4,170	<i>α</i> Aquarii R.....	4		39,03	
* (Mag. 7,8).....	3	18. 48. 4	92. 0. 0,71	- 4,176	<i>ι</i> Aquarii.....	3	21. 57. 47	104. 38. 33,28	- 17,236
<i>ε</i> Aquilæ.....	3	18. 52. 21	75. 8. 37,49	- 4,540	<i>θ</i> Aquarii.....	2	22. 8. 23	98. 34. 37,63	- 17,722
<i>ε</i> Aquilæ R.....	3		36,73		<i>ε</i> Cephei.....	2	22. 9. 8	33. 45. 8,31	- 17,755
<i>τ</i> Sagittarii.....	1	18. 56. 57	117. 53. 47,76	- 4,933	<i>ε</i> Cephei R.....	2		8,13	
<i>η</i> Lyrae.....	4	19. 8. 18	51. 7. 31,66	- 5,889	<i>ζ</i> Aquarii (North star)	3	{ 22. 20. 36 }	90. 50. 8,85	- 18,199
<i>η</i> Lyrae R.....	4		30,96		<i>ζ</i> Aquarii (South star)	3		90. 50. 11,65	
<i>f</i> Aquilæ.....	3	19. 12. 0	95. 42. 31,54	- 6,198	<i>α</i> Aquarii.....	2	22. 22. 11	101. 29. 40,13	- 18,254
Piazzi XIX. 85.....	3	19. 14. 9	94. 0. 56,81	- 6,376	<i>η</i> Aquarii.....	2	22. 27. 8	90. 56. 23,32	- 18,431
<i>χ</i> <sup>1</sup> Sagittarii.....	3	19. 15. 32	114. 48. 43,26	- 6,491	<i>κ</i> Aquarii.....	1	22. 29. 28	95. 3. 3,42	- 18,511
<i>h</i> <sup>8</sup> Sagittarii.....	2	19. 26. 58	115. 13. 47,89	- 7,429	<i>ι</i> Cephei.....	2	22. 43. 59	24. 38. 24,43	- 18,963
<i>P</i> Aquilæ.....	3	19. 29. 18	94. 59. 55,48	- 7,619	<i>ι</i> Cephei R.....	2		24,17	
<i>γ</i> Aquilæ.....	4	19. 38. 39	79. 46. 18,40	- 8,371	<i>λ</i> Aquarii.....	4	22. 41. 16	98. 25. 44,15	- 18,972
<i>γ</i> Aquilæ R.....	4		17,39		<i>κ</i> <sup>8</sup> Piscium.....	1	22. 52. 26	90. 40. 19,45	- 19,190
<i>α</i> Aquilæ.....	5	19. 42. 59	81. 32. 57,20	- 8,713	<i>α</i> Pegasi.....	4	22. 56. 48	75. 39. 14,26	- 19,298
<i>α</i> Aquilæ R.....	5		57,13		<i>α</i> Pegasi R.....	4		14,99	
<i>β</i> Aquilæ.....	6	19. 47. 27	83. 59. 15,82	- 8,524	<i>φ</i> Aquarii.....	3	23. 6. 2	96. 54. 36,42	- 19,502
<i>β</i> Aquilæ R.....	6		16,57		<i>ψ</i> <sup>1</sup> Aquarii.....	3	23. 7. 30	99. 57. 28,42	- 19,532
<i>ε</i> Sagittarii.....	1	19. 52. 49	118. 8. 51,44	- 9,467	<i>γ</i> Piscium.....	3	23. 8. 52	87. 35. 27,57	- 19,559
<i>ρ</i> Draconis.....	3	20. 2. 3	22. 34. 55,95	- 10,183	96 Aquarii.....	3	23. 11. 6	95. 59. 50,14	- 19,601
<i>ρ</i> Draconis R.....	3		56,31		<i>κ</i> <sup>1</sup> Piscium.....	4	23. 18. 44	89. 37. 9,68	- 19,731
<i>Σ</i> 2652.....	3	20. 6. 24	28. 23. 37,62	- 10,509	<i>γ</i> Cephei.....	2	23. 32. 50	13. 15. 36,16	- 19,915
3 Capricorni.....	3	20. 7. 31	102. 49. 16,89	- 10,592	<i>γ</i> Cephei R.....	2		38,13	
<i>α</i> <sup>1</sup> Capricorni.....	2	20. 8. 46	102. 59. 49,82	- 10,685	<i>γ</i> Cephei SP.....	1		37,95	
<i>α</i> <sup>1</sup> Capricorni R.....	2		50,83		<i>γ</i> Cephei SP. R.....	1		37,71	
<i>α</i> <sup>2</sup> Capricorni.....	2	20. 9. 10	103. 2. 6,37	- 10,717	<i>λ</i> Piscium.....	5	23. 33. 53	89. 5. 59,42	- 19,952
<i>α</i> <sup>2</sup> Capricorni R.....	2		6,21		<i>n</i> Piscium.....	3	23. 39. 43	93. 39. 0,72	- 19,977
<i>β</i> <sup>2</sup> Capricorni.....	1	20. 12. 1	105. 16. 51,58	- 10,924	<i>δ</i> Apparatus Sculp.....	3	23. 40. 35	119. 0. 49,74	- 19,983
<i>γ</i> Cygni.....	1	20. 16. 29	50. 15. 6,17	- 11,250	<i>p</i> Piscium.....	3	23. 50. 29	94. 26. 35,74	- 20,039
<i>γ</i> Cygni R.....	1		7,21		<i>ω</i> Piscium.....	3	23. 51. 6	84. 1. 20,92	- 20,040
<i>π</i> Capricorni.....	2	20. 18. 9	108. 43. 49,09	- 11,373	<i>q</i> Piscium.....	3	23. 53. 38	93. 55. 3,56	- 20,048
<i>ν</i> Capricorni.....	1	20. 30. 56	108. 41. 49,72	- 12,274	* (Mag. 8,9).....	2	23. 53. 42	25. 26. 15,88	- 20,048



SIDEREAL INTERVALS OCCUPIED BY TRANSITS OF DIAMETERS.

AND

VERTICAL DIAMETERS,

OF THE

SUN, MOON, AND PLANETS.

DEDUCED

FROM THE TRANSIT AND CIRCLE OBSERVATIONS, AND COMPARED  
WITH THOSE OF THE NAUTICAL ALMANAC.

1840.

I. SIDEREAL INTERVALS occupied by TRANSITS of the SUN'S DIAMETER across the Meridian, and VERTICAL DIAMETERS of the SUN; compared with those of the NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.	Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.
1840.	m. s.	s.	s.	" "	" "	" "	1840.	m. s.	s.	s.	" "	" "	" "
Jan. 2	2. 22,35	21,92	- 0,43	32. 32,38	34,60	+ 2,22	May 4	2. 13,05	12,48	- 0,57	31. 44,64	44,40	- 0,24
6	21,70	21,50	- 0,20	30,75	34,40	+ 3,65	16	14,60	14,44	- 0,16	40,83	39,40	- 1,43
7	21,73	21,38	- 0,35	30,83	34,40	+ 3,57	21	15,70	15,22	- 0,48			
11	21,22	20,80	- 0,42	35,18	34,20	- 0,98	27	16,35	16,06	- 0,29	34,19	35,60	+ 1,41
13	20,80	20,48	- 0,32	33,09	33,80	+ 0,71	28	16,29	16,18	- 0,11	38,10	35,20	- 2,90
15	20,74	20,12	- 0,62	30,18	33,60	+ 3,42	29	16,86	16,32	- 0,54	32,60	35,00	+ 2,40
16	20,28	19,94	- 0,34	33,25	33,60	+ 0,35	30	16,81	16,44	- 0,37	36,16	34,60	- 1,56
20	19,37	19,16	- 0,21										
21	19,15	18,94	- 0,21	28,88	32,60	+ 3,72	June 1	16,96	16,66	- 0,30	32,37	34,20	+ 1,83
25	18,50	18,08	- 0,42	29,04	31,80	+ 2,76	3	17,08	16,88	- 0,20			
27	17,67	17,64	- 0,03	29,84	31,20	+ 1,36	6	17,57	17,18	- 0,39	34,13	33,00	- 1,13
30	17,35	16,96	- 0,39	31,40	30,40	- 1,00	8	17,97	17,34	- 0,63	33,19	32,60	- 0,59
31	17,13	16,72	- 0,41	29,16	30,20	+ 1,04	9	17,80	17,40	- 0,40	28,09	32,40	+ 4,31
							10				33,65	32,20	- 1,45
Feb. 1	16,78	16,48	- 0,30	29,01	29,80	+ 0,79	15	18,01	17,70	- 0,31	28,64	31,40	+ 2,76
6				28,81	28,20	- 0,61	16	18,40	17,74	- 0,66	32,76	31,20	- 1,56
11	14,13	14,24	+ 0,11	24,72	26,40	+ 1,68	17	18,28	17,76	- 0,52			
13	13,81	13,80	- 0,01	25,42	25,60	+ 0,18	18	18,34	17,78	- 0,56			
14	13,72	13,58	- 0,14	26,36	25,40	- 0,96	20				30,18	30,60	+ 0,42
24	11,60	11,62	+ 0,02	18,67	21,00	+ 2,33	23	18,28	17,74	- 0,54	28,30	30,40	+ 2,10
25	12,00	11,44	- 0,56	19,43	20,40	+ 0,97							
27	11,53	11,12	- 0,41	17,21	19,40	+ 2,19	July 3				28,55	30,00	+ 1,45
28	11,13	10,96	- 0,17	18,72	19,00	+ 0,28	7	17,24	16,84	- 0,40	30,77	30,20	- 0,57
29	11,22	10,80	- 0,42	17,23	18,40	+ 1,17	8	17,05	16,74	- 0,31	31,14	30,20	- 0,94
							9	17,17	16,62	- 0,55	30,41	30,40	- 0,01
Mar. 2	11,29	10,50	- 0,79	19,34	17,60	- 1,74	11	16,82	16,38	- 0,44	28,73	30,40	+ 1,67
4	10,63	10,22	- 0,41	18,04	16,40	- 1,64	15	16,37	15,86	- 0,51	31,47	30,80	- 0,67
5	10,57	10,10	- 0,47	14,53	16,00	+ 1,47	17	15,85	15,58	- 0,27	30,35	31,20	+ 0,85
6	10,15	9,98	- 0,17	18,04	15,60	- 2,44	21	15,59	14,96	- 0,63	30,98	31,80	+ 0,82
7	10,02	9,86	- 0,16	13,74	15,00	+ 1,26	24	14,72	14,48	- 0,24	33,59	32,20	- 1,39
10	9,98	9,56	- 0,42	12,66	13,10	+ 0,74	27				32,47	32,80	+ 0,33
13	9,74	9,30	- 0,44	11,55	11,80	+ 0,25	28	13,76	13,80	+ 0,04			
19	9,27	8,94	- 0,33	8,37	8,60	+ 0,23	30				35,55	33,60	- 1,95
21	9,33	8,86	- 0,47	6,19	7,60	+ 1,41							
24	9,20	8,78	- 0,42	7,63	5,80	- 1,83	Aug. 1	13,36	13,12	- 0,24	34,42	34,00	- 0,42
25	9,01	8,78	- 0,23	4,61	5,20	+ 0,59	3	12,82	12,78	- 0,04	32,27	34,60	+ 2,33
							4				36,39	35,00	- 1,39
Apr. 2	9,21	8,90	- 0,31	32. 0,44	0,80	+ 0,36	5	12,41	12,44	+ 0,03	34,69	35,20	+ 0,51
3	9,42	8,94	- 0,48	31. 59,84	60,20	+ 0,36	6	12,33	12,26	- 0,07	36,62	35,60	- 1,02
4	9,22	9,00	- 0,22	60,13	59,60	- 0,53	7	12,10	12,10	0,00	35,09	35,80	+ 0,71
6				55,50	58,60	+ 3,10	8	11,91	11,92	+ 0,01	36,79	36,20	- 0,59
7	9,59	9,18	- 0,41	58,20	58,00	- 0,20	14				39,36	38,20	- 1,16
9	9,73	9,32	- 0,41	56,39	57,00	+ 0,61	18	10,35	10,34	- 0,01	39,93	39,60	- 0,33
11	10,20	9,48	- 0,72	54,46	56,00	+ 1,54	20	10,48	10,06	- 0,42	41,11	40,40	- 0,71
13				55,29	54,80	- 0,49	21	10,21	9,92	- 0,29	40,07	40,80	+ 0,73
14				55,70	54,40	- 1,30	22				39,43	41,20	+ 1,77
15	10,18	9,86	- 0,32	53,57	53,80	+ 0,23	24	9,93	9,54	- 0,39	41,22	42,00	+ 0,78
16	10,38	9,98	- 0,40	52,74	53,40	+ 0,66	25	9,61	9,42	- 0,19	42,46	42,40	- 0,06
18	10,48	10,20	- 0,28	50,48	52,20	+ 1,72	26	10,00	9,30	- 0,70	41,67	42,80	+ 1,13
20	10,76	10,44	- 0,32	52,99	51,20	- 1,79	27				43,12	43,40	+ 0,28
23	11,20	10,84	- 0,36	50,52	49,60	- 0,92	29	9,37	8,98	- 0,39	44,74	44,20	- 0,54
24	11,54	10,98	- 0,56	51,65	49,20	- 2,45							
25	11,86	11,10	- 0,76	47,73	48,60	+ 0,87	Sept. 1	8,98	8,70	- 0,28	45,95	45,60	- 0,35
27	11,77	11,38	- 0,39	48,83	47,60	- 1,23	2				45,12	46,20	+ 1,08
28	12,13	11,54	- 0,59	50,10	47,20	- 2,90	3	8,56	8,54	- 0,02	47,47	46,60	- 0,87
29	12,21	11,68	- 0,53	45,44	46,60	+ 1,16	4	8,78	8,46	- 0,32	44,42	47,00	+ 2,58
30	12,46	11,84	- 0,62	48,08	46,20	- 1,88	8	8,50	8,22	- 0,28	47,41	49,00	+ 1,59
							10	8,40	8,14	- 0,26	50,06	50,20	+ 0,14
May 1	12,64	12,00	- 0,64	44,20	45,60	+ 1,40	11	8,70	8,10	- 0,60	51,09	50,60	- 0,49
2	2. 12,72	12,16	- 0,56	31. 46,37	45,20	- 1,17	12	2. 8,36	8,08	- 0,28	31. 50,83	51,20	+ 0,37

Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.	Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.
1840.	m. s.	s.	s.	" "	" "	" "	1840.	m. s.	s.	s.	" "	" "	" "
Sept. 17	2. 8,49	8,02	- 0,47	31. 54,29	53,80	- 0,49	Oct. 30	2. 13,77	13,40	- 0,37			
19				53,97	54,80	+ 0,83							
23				56,85	56,80	- 0,05	Nov. 5	15,39	14,78	- 0,61	32. 19,92	20,00	+ 0,08
24	8,54	8,18	- 0,36	58,18	57,40	- 0,78	9	16,35	15,74	- 0,61	20,28	21,80	+ 1,52
26	8,73	8,28	- 0,45	57,28	58,40	+ 1,12	11	16,49	16,20	- 0,29	22,49	22,80	+ 0,31
29				32. 1,02	0,20	- 0,82	20	18,51	18,28	- 0,23	24,65	26,40	+ 1,75
30	8,80	8,56	- 0,24	31. 58,67	60,80	+ 2,13	21	18,81	18,50	- 0,31	27,59	26,80	- 0,79
							24	19,47	19,16	- 0,31	26,51	27,80	+ 1,29
Oct. 3				32. 0,94	2,40	+ 1,46	25	19,62	19,36	- 0,26	26,87	28,20	+ 1,33
7	9,45	9,28	- 0,17	5,03	4,80	- 0,23	26	20,21	19,56	- 0,65	27,31	28,40	+ 1,09
8	9,84	9,42	- 0,42	5,70	5,20	+ 1,50	27	20,08	19,76	- 0,32	29,56	28,80	- 0,76
9	10,04	9,56	- 0,48	6,49	5,80	- 0,69	28	20,27	19,94	- 0,33	28,17	29,20	+ 1,03
10	10,00	9,68	- 0,32	6,28	6,40	+ 0,12							
12	10,31	9,96	- 0,35	7,50	7,60	+ 0,10	Dec. 1	20,74	20,50	- 0,24	30,58	30,20	- 0,38
13	10,51	10,12	- 0,39	7,75	8,00	+ 0,25	2	21,03	20,66	- 0,37	28,31	30,40	+ 2,09
14	10,56	10,28	- 0,28	7,88	8,60	+ 0,72	3	21,43	20,82	- 0,61	31,65	30,60	- 1,05
15	10,54	10,44	- 0,10	10,08	9,20	- 0,88	4	21,35	20,98	- 0,37	28,09	31,00	+ 2,91
19				7,25	11,20	+ 3,95	9	22,10	21,64	- 0,46	33,02	32,20	- 0,82
20	11,55	11,32	- 0,23	10,49	11,80	+ 1,31	15	22,72	22,18	- 0,54	33,15	33,40	+ 0,25
24	12,21	12,10	- 0,11	12,56	13,80	+ 1,24	18	22,90	22,34	- 0,56	32. 32,83	33,80	+ 0,97
26	2. 12,87	12,52	- 0,35	32. 14,50	14,80	+ 0,30	23	2. 22,94	22,40	- 0,54			

II. SIDEREAL INTERVALS occupied by TRANSITS of the MOON'S DIAMETER across the Meridian, and VERTICAL DIAMETERS of the MOON; compared with those of the NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Calculated Error of Tabular Diameter.	Day of Observation.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.
1840.	m. s.	s.	s.	" "	1840.	" "	" "	" "
Apr. 16	2. 8,08	7,38	- 0,70	- 9,89	Sept. 11	31. 27,80	22,20	- 5,60
July 14	2. 15,85	15,18	- 0,67	- 8,90	Oct. 10	32. 14,14	6,70	- 7,44
Sept. 11	2. 10,28	9,80	- 0,48	- 7,03				
Nov. 9	2. 30,39	29,92	- 0,47	- 6,31				

### III. VERTICAL DIAMETERS *of* VENUS, compared with those of the NAUTICAL ALMANAC.

Day of Observation.	Diameter by Observation.	Tabular Diameter.	Excess of Latter.	Day of Observation.	Diameter by Observation.	Tabular Diameter.	Excess of Latter.	Day of Observation.	Diameter by Observation.	Tabular Diameter.	Excess of Latter.		
1840.	"	"	"	1840.	"	"	"	1840.	"	"	"		
Jan. 10	21,74	19,00	- 2,74	April 23	11,22	11,00	- 0,22	Aug. 21	10,42	9,60	- 0,82		
12	19,82	18,60	- 1,22	24	11,44	11,00	- 0,44	24	10,94	9,60	- 1,34		
15	19,12	18,20	- 0,92	26	12,44	10,80	- 1,64	25	11,26	9,60	- 1,66		
26	17,36	16,80	- 0,56	27	11,82	10,80	- 1,02	27	11,16	9,80	- 1,36		
29	17,58	16,40	- 1,18	28	11,46	10,80	- 0,66	Sept. 1	10,08	9,80	- 0,28		
Feb. 3	16,84	15,80	- 1,04	30	11,50	10,80	- 0,70		3	11,28	9,80	- 1,48	
	10	16,70	15,00	- 1,70	May 1	11,72	10,60		- 1,12	8	11,34	9,80	- 1,54
	11	14,82	15,00	+ 0,18		3	10,62	10,60	- 0,02	10	9,60	9,80	+ 0,20
	12	16,60	14,80	- 1,80	4	11,12	10,60	- 0,52	12	10,38	10,00	- 0,38	
	13	16,04	14,80	- 1,24	15	11,10	10,20	- 0,90	17	10,46	10,00	- 0,46	
	17	13,92	14,40	+ 0,48	26	11,16	10,00	- 1,16	Oct. 6	11,26	10,40	- 0,86	
	23	14,12	14,00	- 0,12	28	9,74	10,00	+ 0,26		7	11,08	10,40	- 0,68
	24	14,00	14,00	0,00	29	10,72	10,00	- 0,72		9	11,16	10,60	- 0,56
	26	14,28	13,80	- 0,48	31	11,48	10,00	- 1,48		10	11,00	10,60	- 0,40
28	13,20	13,60	+ 0,40	June 2	9,86	10,00	+ 0,14	12	10,24	10,60	+ 0,36		
Mar. 1	15,30	13,40	- 1,90		5	10,74	9,80	- 0,94	13	10,60	10,60	0,00	
	2	13,80	13,40		- 0,40	7	10,62	9,80	- 0,82	14	11,02	10,60	- 0,42
	3	14,12	13,40	- 0,72	15	9,54	9,80	+ 0,26	20	10,90	10,80	- 0,10	
	4	13,14	13,20	+ 0,06	19	8,54	9,60	+ 1,06	Nov. 2	11,60	11,20	- 0,40	
	5	13,48	13,20	- 0,28	21	9,14	9,60	+ 0,46		5	10,98	11,40	+ 0,42
	6	13,42	13,20	- 0,22	July 2	9,56	9,60	+ 0,04		6	10,74	11,40	+ 0,66
	9	12,66	13,00	+ 0,34		6	10,24	9,60		- 0,64	9	11,28	11,60
	20	12,26	12,40	+ 0,14	14	10,48	9,60	- 0,88	12	11,34	11,60	+ 0,26	
	23	12,14	12,20	+ 0,06	Aug. 3	11,94	9,60	- 2,34	16	11,64	11,80	+ 0,16	
24	12,40	12,20	+ 0,20	5		9,74	9,60	- 0,14	20	12,36	12,00	- 0,36	
April 1	10,50	11,80	+ 1,30	6		11,32	9,60	- 1,72	26	11,98	12,20	+ 0,22	
	2	11,38	11,80	+ 0,42	7	11,56	9,60	- 1,96	27	12,88	12,40	- 0,48	
	3	11,72	11,80	+ 0,08	8	12,18	9,60	- 2,58	28	12,88	12,40	- 0,48	
	10	10,16	11,40	+ 1,24	12	11,80	9,60	- 2,20	Dec. 2	12,98	12,40	- 0,58	
	13	10,96	11,40	+ 0,44	14	9,48	9,60	+ 0,12		3	12,82	12,40	- 0,42
	14	10,60	11,40	+ 0,80	15	10,16	9,60	- 0,56		9	13,66	12,80	- 0,86
	15	11,68	11,20	- 0,48	17	10,16	9,60	- 0,56		15	13,66	13,20	- 0,46
	17	10,58	11,20	+ 0,62	18	10,00	9,60	- 0,40		17	14,04	13,40	- 0,64
	22	10,84	11,00	+ 0,16									

IV. SIDEREAL INTERVALS *occupied by* TRANSITS *of* JUPITER'S DIAMETER, *and* VERTICAL DIAMETERS *of* JUPITER; *compared with those of the* NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Tabular Diameter.	Excess of Latter.
1840.	s.	s.	s.	..	..	..
Apr. 17	3,51	3,08	- 0,43	41,88	41,60	- 0,28
May 14	3,52	3,10	- 0,42	43,86	41,80	- 2,06
15	3,42	3,10	- 0,32	43,40	41,80	- 1,60
June 10	3,07	2,96	- 0,11	40,50	40,20	- 0,30
July 11	2,82	2,74	- 0,08	34,74	37,20	+ 2,46
13	3,10	2,72	- 0,38	37,10	37,00	- 0,10
Sept. 1	2,56	2,38	- 0,18	31,04	32,00	+ 0,96

V. SIDEREAL INTERVALS *occupied by* TRANSITS *of* SATURN'S RING, *and* VERTICAL DIAMETERS *of* SATURN; *compared with those of the* NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Tabular Diameter.	Excess of Latter.
1840.	s.	s.	s.	..	..	..
June 14	3,42	2,96	- 0,46	18,96	16,60	- 2,36
July 6				18,66	16,40	- 2,26
11	3,30	2,92	- 0,38	17,04	16,40	- 0,64
Aug. 1	2,81	2,82	+ 0,01			
5	2,94	2,82	- 0,12	15,84	15,80	- 0,04
6	2,80	2,82	+ 0,02			
7	2,90	2,82	- 0,08	16,30	15,80	- 0,50
8	2,86	2,82	- 0,04	16,66	15,80	- 0,86
11	2,83	2,78	- 0,05	14,46	15,80	+ 1,34



CONCLUDED

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES

OF THE CENTERS OF THE

SUN, MOON, AND PLANETS,

OBSERVED IN THE YEAR 1840.

COMPARED WITH THE RIGHT ASCENSIONS AND NORTH POLAR DISTANCES  
INTERPOLATED FROM THE NAUTICAL ALMANAC;

WITH THE

GREENWICH MEAN SOLAR TIMES OF OBSERVATION.



Greenwich Mean Solar Time of Transit of Center.				Limb Observed.	R. A. of Center from Observation.			Seconds of Tabular R.A.		Error of Tables.		Limb Observed.	N.P.D. of Center from Observation.			Seconds of Tabular N.P.D.		Error of Tables.	
d.	h.	m.	s.		h.	m.	s.	s.	s.	s.	s.		°	'	"	"	"	"	"
Jan.	2.	0.	3.41.8	II.	18.	48.	54.12	54.09	-0.03				112.	59.	5.87	10.29	+4.42		
	6.	0.	5.32.6		19.	6.	31.44	31.08	-0.36				112.	34.	50.93	53.02	+2.09		
	7.	0.	5.58.9		19.	10.	54.41	54.23	-0.18				112.	27.	38.97	41.22	+2.25		
	8.	0.	6.24.7		19.	15.	16.88	16.89	+0.01										
	11.	0.	7.39.7		19.	28.	21.69	21.54	-0.15				111.	54.	29.15	30.65	+1.50		
	13.	0.	8.26.6		19.	37.	1.88	1.66	-0.22				111.	35.	18.69	20.87	+2.18		
	15.	0.	9.10.7		19.	45.	39.24	39.17	-0.07				111.	14.	28.52	31.28	+2.76		
	16.	0.	9.32.1		19.	49.	57.17	56.92	-0.25				111.	3.	28.07	29.79	+1.72		
	20.	0.	10.49.3		20.	7.	0.87	0.77	-0.10										
	21.	0.	11.6.8		20.	11.	14.99	14.88	-0.11				110.	2.	27.31	27.92	+0.61		
	25.	0.	12.9.5		20.	28.	4.09	3.71	-0.38				109.	6.	52.40	52.34	-0.06		
	27.	0.	12.35.9		20.	36.	23.65	23.46	-0.19				108.	36.	55.96	56.55	+0.59		
	30.	0.	13.9.9		20.	48.	47.45	47.13	-0.32				107.	49.	31.95	31.57	-0.38		
	31.	0.	13.19.4		20.	52.	53.47	53.39	-0.08				107.	33.	4.17	4.37	+0.20		
Feb.	1.	0.	13.28.3	II.	20.	56.	58.95	58.85	-0.10				107.	16.	18.12	18.58	+0.46		
	6.	0.	14.0.1		21.	17.	13.62	13.71	+0.09				105.	48.	3.71	3.70	-0.01		
	11.	0.	14.11.8		21.	37.	8.12	7.99	-0.13				104.	13.	3.97	5.42	+1.45		
	13.	0.	14.10.8		21.	45.	0.26	0.07	-0.19				103.	33.	24.91	25.23	+0.32		
	14.	0.	14.8.9		21.	48.	54.88	54.95	+0.07				103.	13.	13.91	15.23	+1.32		
	24.	0.	13.13.2		22.	27.	24.65	24.50	-0.15				99.	40.	57.45	58.26	+0.83		
	25.	0.	13.3.9		22.	31.	11.80	11.92	+0.12				99.	18.	46.34	49.36	+3.02		
	27.	0.	12.44.1		22.	38.	45.11	45.05	-0.06				98.	34.	5.32	6.47	+1.15		
	28.	0.	12.33.3		22.	42.	30.87	30.79	-0.08				98.	11.	33.55	33.37	-0.18		
	29.	0.	12.22.0		22.	46.	16.09	16.01	-0.08				97.	48.	52.33	52.87	+0.54		
Mar.	2.	0.	11.58.2		22.	53.	45.26	44.92	-0.34				97.	3.	12.83	12.08	-0.75		
	4.	0.	11.31.7		23.	1.	11.80	11.89	+0.09				96.	17.	7.49	7.48	-0.01		
	5.	0.	11.17.8		23.	4.	54.51	54.69	+0.18				95.	53.	57.61	57.18	-0.43		
	6.	0.	11.3.9		23.	8.	37.09	37.06	-0.03				95.	30.	42.95	42.18	-0.77		
	7.	0.	10.49.5		23.	12.	19.14	19.00	-0.14				95.	7.	21.82	22.78	+0.96		
	10.	0.	10.3.4		23.	23.	22.58	22.50	-0.08				93.	57.	2.69	2.88	+0.19		
	13.	0.	9.14.0		23.	34.	22.76	22.90	+0.14				92.	46.	17.15	18.39	+1.24		
	19.	0.	7.28.8		23.	56.	16.57	16.63	+0.06				90.	24.	14.80	14.59	-0.21		
	21.	0.	6.52.2		0.	3.	32.99	33.14	+0.15				89.	36.	53.45	52.99	-0.46		
	24.	0.	5.57.2		0.	14.	27.48	27.29	-0.19				88.	25.	59.22	59.39	+0.17		
	25.	0.	5.38.5		0.	18.	5.25	5.26	+0.01				88.	2.	24.85	25.18	+0.33		
Apr.	2.	0.	3.11.4	I.	0.	47.	10.25	10.30	+0.05				84.	55.	52.57	50.58	-1.99		
	3.	0.	2.53.3		0.	50.	48.57	48.86	+0.29				84.	32.	53.24	51.67	-1.57		
	4.	0.	2.35.7		0.	54.	27.54	27.57	+0.03				84.	9.	59.41	58.47	-0.94		
	6.	0.	2.0.5		1.	1.	45.37	45.51	+0.14				83.	24.	31.64	30.97	-0.67		
	7.	0.	1.43.4		1.	5.	24.72	24.76	+0.04				83.	1.	58.74	57.26	-1.48		
	9.	0.	1.9.7		1.	12.	44.10	43.92	-0.18				82.	17.	12.02	11.86	-0.16		
	11.	0.	0.26.6		1.	20.	4.00	4.04	+0.04				81.	32.	57.32	58.06	+0.74		
	13.	0.	0.4.8	II.	1.	27.	25.22	25.26	+0.04				80.	49.	20.01	18.55	-1.46		
	13.	23.	59.49.5		1.	31.	6.41	6.33	-0.08				80.	27.	43.61	42.45	-1.16		
	14.	23.	59.34.3		1.	34.	47.73	47.74	+0.01				80.	6.	16.84	15.75	-1.09		
	15.	23.	59.19.6		1.	38.	29.55	29.50	-0.05				79.	44.	60.53	58.95	-1.58		
	17.	23.	58.51.4		1.	45.	54.33	54.16	-0.17				79.	2.	57.04	55.84	-1.20		
	19.	23.	58.24.5		1.	53.	20.49	20.46	-0.03				78.	21.	38.12	35.53	-2.59		
	22.	23.	57.47.6		2.	4.	33.17	33.26	+0.09				77.	21.	2.13	0.82	-1.31		
	23.	23.	57.36.2		2.	8.	18.26	18.48	+0.22				77.	1.	13.86	13.32	-0.54		
	24.	23.	57.25.4		2.	12.	4.07	4.19	+0.12				76.	41.	35.28	38.52	+3.24		
	26.	23.	57.5.6		2.	19.	37.29	37.15	-0.14				76.	3.	8.74	8.21	-0.53		
	27.	23.	56.56.2		2.	33.	24.45	24.40	-0.05				75.	44.	11.21	13.41	+2.20		
	28.	23.	56.47.5		2.	27.	12.20	12.18	-0.02				75.	25.	31.21	32.60	+1.39		
	29.	23.	56.39.5		2.	31.	0.80	0.51	-0.29				75.	7.	5.98	6.19	+0.21		
	30.	23.	56.31.6		2.	34.	49.42	49.37	-0.05				74.	48.	55.28	54.49	-0.79		
May	1.	23.	56.24.5	II.	2.	38.	38.87	38.78	-0.09				74.	30.	58.46	57.89	-0.57		
	3.	23.	56.11.7		2.	46.	19.08	19.26	+0.18				73.	55.	52.29	50.68	-1.61		
	13.	23.	55.41.9		3.	25.	14.76	14.83	+0.07				71.	17.	5.45	4.33	-1.12		
	15.	23.	55.42.8		3.	33.	8.81	8.69	-0.12				70.	48.	57.13	57.02	-0.11		
	20.	23.	55.54.4		3.	53.	3.26	3.20	-0.06										
	26.	23.	56.26.6		4.	17.	14.89	14.69	-0.20				68.	38.	16.24	16.76	+0.52		
	27.	23.	56.33.8		4.	21.	18.69	18.38	-0.31				68.	28.	31.20	31.85	+0.65		
	28.	23.	56.40.9		4.	25.	22.35	22.56	+0.21				68.	19.	8.25	9.34	+1.09		
	29.	23.	56.49.3		4.	29.	27.30	27.20	-0.10				68.	10.	8.15	9.44	+1.29		
	31.	23.	57.6.5		4.	37.	37.70	37.76	+0.06				67.	53.	16.21	17.73	+1.52		

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.			Seconds of Tabular R.A.	Error of Tables.	Limb Observed.	N.P.D. of Center from Observation.		Seconds of Tabular N.P.D.	Error of Tables.
		h. m. s.	h. m. s.	s.				° ' "	"		
<b>June</b>											
2. 23. 57. 23.5		4. 45. 49.82		49.91	+ 0.09	N.	67. 37. 59.08		58.62	- 0.46	
5. 23. 57. 56.8		4. 58. 10.88		10.69	- 0.19		67. 17. 55.81		56.20	+ 0.39	
7. 23. 58. 18.4		5. 6. 25.70		26.00	+ 0.30		67. 6. 33.02		33.78	+ 0.76	
8. 23. 58. 30.2		5. 10. 34.03		34.05	+ 0.02		67. 1. 28.04		28.68	+ 0.64	
9. 23. 58. 41.9	II.	5. 14. 42.36		42.32	- 0.04		66. 56. 48.90		47.87	- 1.03	
14. 23. 59. 43.3		5. 35. 26.74		26.49	- 0.25		66. 39. 29.61		29.63	+ 0.02	
15. 23. 59. 55.4		5. 39. 35.44		35.75	+ 0.31		66. 37. 15.97		15.63	- 0.34	
17. 0. 0. 8.6		5. 43. 45.17		45.10	- 0.07						
18. 0. 0. 21.7		5. 47. 54.94		54.53	- 0.41						
20. 0. 0. 47.3	II.	5. 56. 13.75		13.54	- 0.21		66. 32. 25.77		26.80	+ 1.03	
23. 0. 1. 26.0		6. 8. 42.14		42.12	- 0.02		66. 33. 10.74		10.48	- 0.26	
24. 0. 1. 38.7	II.	6. 12. 51.51		51.56	+ 0.05						
29. 0. 2. 41.3	I.	6. 33. 37.01		37.11	+ 0.10						
<b>July</b>											
3. 0. 3. 27.8	II.	6. 50. 9.89		9.87	- 0.02		67. 2. 21.63		20.72	- 0.91	
7. 0. 4. 9.3		7. 6. 37.73		37.60	- 0.13		67. 25. 18.21		18.99	+ 0.78	
8. 0. 4. 18.4		7. 10. 43.16		43.59	+ 0.43		67. 32. 2.17		2.48	+ 0.31	
9. 0. 4. 27.4		7. 14. 49.01		49.17	+ 0.16		67. 39. 8.02		9.18	+ 1.16	
11. 0. 4. 44.2		7. 22. 58.99		59.02	+ 0.03		67. 54. 31.95		31.57	- 0.38	
14. 0. 5. 5.9	II.	7. 35. 10.38		10.34	- 0.04						
15. 0. 5. 12.0		7. 39. 13.13		13.15	+ 0.02		68. 29. 17.45		17.34	- 0.11	
17. 0. 5. 23.2		7. 47. 17.43		17.26	- 0.17		68. 19. 37.76		37.61	- 0.15	
21. 0. 5. 38.6		8. 3. 19.05		19.25	+ 0.20		69. 33. 35.82		35.11	- 0.71	
22. 0. 5. 41.1	I.	8. 7. 18.18		18.10	+ 0.22	S.	69. 45. 28.24		28.80	- 1.44	
24. 0. 5. 45.0		8. 15. 15.23		15.04	- 0.19		70. 10. 11.59		11.19	- 0.40	
27. 0. 5. 45.9	II.	8. 27. 5.73		5.74	+ 0.01		70. 49. 17.12		16.37	- 0.65	
28. 0. 5. 45.0		8. 31. 1.45		1.46	+ 0.01	S.	71. 3. 37.79		36.67	- 1.12	
30. 0. 5. 41.7	II.	8. 38. 51.23		51.08	- 0.15		71. 32. 12.37		13.16	+ 0.79	
<b>Aug.</b>											
1. 0. 5. 35.6		8. 46. 38.20		38.27	+ 0.07		72. 2. 2.24		2.35	+ 0.11	
3. 0. 5. 27.3		8. 54. 22.97		22.98	+ 0.01		72. 33. 0.55		1.84	+ 1.29	
4. 0. 5. 22.3	II.	8. 58. 14.50		14.10	- 0.40		72. 48. 57.82		57.24	- 0.58	
5. 0. 5. 16.5		9. 2. 5.31		5.21	- 0.10		73. 5. 10.17		9.13	- 1.04	
6. 0. 5. 10.1		9. 5. 55.42		55.41	- 0.01		73. 21. 38.84		37.43	- 1.41	
7. 0. 5. 3.2		9. 9. 45.10		45.00	- 0.10		73. 38. 22.32		21.72	- 0.60	
8. 0. 4. 55.7		9. 13. 34.07		33.98	- 0.09		73. 55. 22.55		21.72	- 0.83	
10. 0. 4. 38.6	I.	9. 21. 10.10		10.17	+ 0.07						
14. 0. 3. 58.1	II.	9. 36. 15.70		15.68	- 0.02		75. 12. 35.32		35.30	0.02	
18. 0. 3. 9.1		9. 51. 12.77		12.68	- 0.09		76. 58. 42.00		41.78	- 0.22	
20. 0. 2. 41.4		9. 58. 38.13		38.25	+ 0.12		77. 37. 59.78		61.37	+ 1.59	
21. 0. 2. 27.2		10. 2. 20.41		20.36	- 0.05		77. 57. 57.97		59.27	+ 1.30	
22. 0. 2. 12.4	I.	10. 6. 2.14		2.04	- 0.10		78. 18. 9.65		8.77	- 0.88	
24. 0. 1. 41.4		10. 13. 24.19		24.10	- 0.09		78. 59. 1.33		1.06	- 0.27	
25. 0. 1. 25.3		10. 17. 4.57		4.51	- 0.06		79. 19. 43.45		43.16	- 0.29	
26. 0. 1. 9.0		10. 20. 44.76		44.53	- 0.23		79. 40. 37.42		37.56	- 1.86	
27. 0. 0. 52.0	I.	10. 24. 23.30		24.16	- 0.14		80. 1. 38.65		37.85	- 0.80	
29. 0. 0. 17.3		10. 31. 42.57		42.31	- 0.26		80. 44. 11.47		10.75	- 0.72	
31. 23. 59. 22.1		10. 42. 36.93		36.97	+ 0.04		81. 49. 5.69		5.54	- 0.15	
<b>Sept.</b>											
1. 23. 59. 3.2	II.	10. 46. 14.56		14.57	+ 0.01		82. 10. 59.82		59.94	+ 0.12	
2. 23. 58. 44.0		10. 49. 51.82		51.87	+ 0.05		82. 33. 0.25		1.84	+ 1.59	
3. 23. 58. 24.4		10. 53. 28.69		28.89	+ 0.20		82. 55. 10.61		10.84	+ 0.21	
7. 23. 57. 4.1		11. 7. 54.39		54.65	+ 0.26		84. 24. 51.38		51.63	+ 0.25	
9. 23. 56. 25.0		11. 15. 6.37		6.38	+ 0.01		85. 10. 16.98		16.63	- 0.35	
10. 23. 56. 2.4		11. 18. 42.20		42.03	- 0.17		85. 33. 6.22		6.63	+ 0.41	
11. 23. 55. 41.4		11. 22. 17.70		17.57	- 0.13		85. 56. 1.23		1.32	+ 0.09	
16. 23. 53. 55.6		11. 40. 14.36		14.47	+ 0.11		87. 51. 34.06		34.32	+ 0.26	
18. 23. 53. 13.2	II.	11. 47. 24.97		25.26	+ 0.29		88. 38. 10.48		9.42	1.06	
22. 23. 51. 50.0	II.	12. 1. 47.80		47.85	+ 0.05		90. 11. 42.45		42.22	- 0.23	
23. 23. 51. 29.6		12. 5. 23.84		23.80	- 0.04		90. 35. 8.00		8.12	+ 0.12	
25. 23. 50. 48.0		12. 12. 36.17		36.20	+ 0.03		91. 22. 0.16		0.32	+ 0.16	
28. 23. 49. 40.6	II.	12. 25. 26.29		26.30	+ 0.01		92. 32. 13.83		14.42	+ 0.59	
29. 23. 49. 30.4		12. 27. 3.65		3.48	- 0.17		92. 55. 35.59		36.62	+ 1.03	
<b>Oct.</b>											
2. 23. 48. 33.9							94. 5. 30.77		30.92	0.75	
6. 23. 47. 23.6		12. 32. 32.40		32.19	- 0.21		95. 37. 57.01		57.32	+ 0.72	
7. 23. 47. 6.7		12. 56. 11.95		12.02	+ 0.07		96. 0. 53.91		53.93	+ 0.02	
8. 23. 46. 50.4		12. 59. 52.24		52.27	+ 0.03		96. 23. 45.08		45.73	+ 0.65	
9. 23. 46. 34.9		13. 3. 33.12		33.08	- 0.14		96. 46. 32.72		32.53	- 0.19	
11. 23. 46. 4.6		13. 10. 55.90		55.84	- 0.06		97. 31. 50.15		49.43	- 0.72	

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Error of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Error of Tables.
d. h. m. s.		h. m. s.	s.	s.		° ' "	"	"
Oct. 12. 23. 45. 50,3		13. 14. 38,13	38,04	-0,09		97. 54. 17,99	18,83	+0,84
13. 23. 45. 36,4		13. 18. 20,73	20,78	+0,05		98. 16. 40,54	41,74	+1,20
14. 23. 45. 23,4		13. 22. 4,29	4,08	-0,21		98. 38. 57,80	57,84	+0,04
18. 23. 44. 36,3						100. 6. 46,30	46,05	-0,25
19. 23. 44. 26,3		13. 40. 49,80	49,69	-0,11		100. 28. 23,22	22,15	-1,07
23. 23. 43. 52,6		13. 56. 2,18	2,08	-0,10		101. 53. 11,34	10,16	-1,18
25. 23. 43. 39,9		14. 3. 42,59	42,54	-0,05		102. 34. 32,47	30,47	-2,00
29. 23. 43. 23,6		14. 19. 12,46	12,42	-0,04		103. 54. 47,22	47,18	-0,04
Nov. 4. 23. 43. 22,2		14. 42. 50,45	50,50	+0,05		105. 48. 22,61	21,81	-0,80
8. 23. 43. 37,5		14. 58. 51,99	52,12	+0,13		106. 58. 52,60	53,82	+1,22
10. 23. 43. 50,4		15. 6. 57,96	58,00	+0,04		107. 32. 27,31	27,33	+0,02
19. 23. 45. 30,4		15. 44. 7,30	7,08	-0,22		109. 47. 45,77	46,68	+0,91
20. 23. 45. 47,5		15. 48. 21,04	18,98	-2,06*		110. 1. 4,87	5,79	+0,92
23. 23. 46. 36,3		16. 0. 59,58	59,55	-0,03		110. 38. 50,55	49,51	-1,04
24. 23. 46. 54,7		16. 5. 14,60	14,63	+0,03		110. 50. 37,48	38,41	+0,93
25. 23. 47. 13,9		16. 9. 30,40	30,46	+0,06		111. 2. 3,15	3,82	+0,67
26. 23. 47. 33,9		16. 13. 47,00	47,01	+0,01		111. 13. 3,56	5,43	+1,87
27. 23. 47. 54,5		16. 18. 4,31	4,26	-0,05		111. 23. 41,47	43,03	+1,56
30. 23. 49. 0,7		16. 31. 0,30	0,01	-0,29		111. 53. 6,25	7,85	+1,60
Dec. 1. 23. 49. 23,8		16. 35. 20,01	19,85	-0,16		112. 2. 5,66	5,96	+0,30
2. 23. 49. 47,5		16. 39. 40,32	40,28	-0,04		112. 10. 37,65	38,47	+0,82
3. 23. 50. 11,7		16. 44. 1,16	1,27	+0,11		112. 18. 42,29	45,18	+2,89
8. 23. 52. 21,4		17. 5. 54,02	54,07	+0,05		112. 52. 41,71	43,81	+2,10
14. 23. 55. 10,9		17. 32. 23,33	23,27	-0,06		113. 18. 36,17	36,16	-0,01
17. 23. 56. 39,4		17. 45. 41,80	41,76	-0,04		113. 25. 17,25	16,28	-0,97
22. 23. 59. 9,8		18. 7. 55,39	55,27	-0,12				

\* An error of 2° in the observation.

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF THE MOON.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Error of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Error of Tables.	Effect of increas- ing Pa- rallax Two	Effect of assuming the Earth Spherical.
d. h. m. s.		h. m. s.	s.	s.		° ' "	"	"	"	"
Jan. 7. 2. 18. 16,6	I.	21. 23. 33,85	34,47	+0,62						
10. 4. 34. 49,7	I.	23. 52. 19,06	19,12	+0,06	S.	88. 48. 11,35	12,30	+0,95	+2,73	+12,70
11. 5. 20. 54,4	I.	0. 42. 27,89	27,72	-0,17	S.	82. 11. 36,73	36,91	+0,18	2,48	13,25
12. 6. 9. 33,6	I.	1. 35. 11,64	11,95	+0,31	S.	75. 50. 50,31	49,07	-1,24	2,21	13,62
13. 7. 2. 10,7	I.	2. 31. 53,90	54,43	+0,53	S.	70. 9. 20,24	19,01	-1,23	1,94	13,81
17. 11. 11. 20,0	I.	6. 57. 30,38	31,32	+0,94	N.	62. 59. 12,73	14,65	+1,92	1,52	13,75
19. 13. 8. 11,7	II.	9. 2. 34,41	35,38	+0,97	S.	70. 53. 4,15	7,54	+3,39	1,95	13,61
26. 18. 17. 19,0	II.	14. 40. 8,41	8,72	+0,31	S.	110. 38. 26,29	26,44	+0,15	3,12	9,48
29. 20. 44. 13,3	II.	17. 19. 16,52	16,32	-0,20						
Feb. 8. 4. 7. 11,0	I.	1. 18. 55,97	55,97	0,00	S.	77. 53. 19,27	14,25	-5,02	2,29	13,51
9. 4. 58. 12,5	I.	2. 14. 2,38	2,23	-0,15						
11. 6. 52. 25,3	I.	4. 16. 27,09	27,25	+0,16	S.	63. 19. 31,52	30,22	-1,30	1,56	13,66
12. 7. 54. 41,1	I.	5. 22. 49,70	50,09	+0,39	S.	61. 43. 14,72	16,79	+2,07	1,47	13,61
13. 8. 57. 38,3	I.	6. 29. 53,72	54,33	+0,61	N.	62. 8. 56,43	58,28	+1,85	1,46	13,58
14. 9. 58. 29,8	I.	7. 34. 51,87	52,73	+0,86	N.	64. 32. 11,36	14,79	+3,43	1,59	13,59
17. 12. 35. 18,0	II.	10. 23. 55,43	56,10	+0,67	S.	79. 43. 56,68	63,64	+6,96	2,33	13,11
26. 19. 26. 32,9	II.	17. 51. 46,89	46,77	-0,12						
Mar. 6. 2. 2. 9,6	I.	1. 0. 0,96	1,49	+0,53						
7. 2. 53. 25,9	I.	1. 55. 22,24	22,71	+0,47						
8. 3. 48. 17,1	I.	2. 54. 19,03	19,37	+0,34	S.	68. 8. 18,39	10,15	-8,24	1,83	13,79
9. 4. 46. 57,3	I.	3. 57. 5,47	5,75	+0,28	S.	64. 10. 23,69	17,47	-6,22	1,61	13,70
13. 8. 48. 23,9	I.	8. 14. 57,89	58,98	+1,09	N.	66. 59. 50,90	55,63	+4,73	+1,70	+13,45

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF THE MOON, *continued.*

Greenwich Mean Solar Time of Transit of Center.				Limb Observed.	R.A. of Center from Observation.		Seconds of Tabular R.A.		Error of Tables.	Limb Observed.	N.P.D. of Center from Observation.		Seconds of Tabular N.P.D.		Error of Tables.	Effect of increasing Parallax 1 foot.	Effect of assuming the Earth Spherical.	
d.	h.	m.	s.		h.	m.	s.	s.			t.	°	'	°				'
Apr.	8.	5.	45.	59.8	I.	6.	54.	34.26	34.63	+0.37	N.	62.	57.	34.57	33.89	-0.68	+1.50	+13.54
	9.	6.	44.	24.0	I.	7.	57.	4.57	5.12	+0.55	N.	65.	56.	18.49	18.83	+0.34	1.64	13.17
	10.	7.	57.	53.8	I.	8.	54.	39.73	40.52	+0.79	N.	70.	17.	17.03	19.90	+2.87	1.86	13.37
	11.	8.	26.	46.7	I.	9.	47.	37.22	37.71	+0.49	N.	75.	34.	38.42	45.88	+7.46	2.10	13.17
	12.	9.	12.	0.7	I.	10.	36.	55.28	55.53	+0.25	N.	81.	25.	57.94	63.89	+5.95	2.34	12.85
	13.	9.	54.	49.1	I.	11.	23.	47.22	47.52	+0.30	N.	87.	32.	34.45	38.87	+4.42	2.57	12.38
	14.	10.	36.	26.2	I.	12.	9.	27.65	27.45	-0.20	N.	93.	38.	54.35	56.09	+2.64	2.76	11.79
	15.	11.	17.	58.5	I.	12.	55.	3.34	3.20	-0.14	N.	99.	31.	10.05	11.93	+1.88	2.91	11.11
	16.	12.	0.	25.9	I.	13.	41.	34.28	34.25	-0.03	S.	104.	56.	16.31	18.98	+2.67	3.04	10.34
					II.	13.	41.	34.36	34.25	-0.11								
	17.	12.	44.	35.8	II.	14.	29.	47.96	48.02	+0.06	S.	109.	41.	22.92	25.14	+2.22	3.11	9.64
	24.	18.	31.	42.0	II.	20.	45.	27.07	27.23	+0.16	N.	110.	22.	41.85	37.20	-4.65	3.19	9.85
	25.	19.	18.	43.8	II.	21.	36.	33.26	33.02	-0.24	N.	105.	29.	32.82	29.86	-2.96	3.14	10.68
	26.	20.	4.	45.7	II.	22.	26.	39.27	38.69	-0.58								
	27.	20.	50.	44.2	II.	23.	16.	41.83	41.05	-0.78								
May	4.	2.	28.	51.7	I.	5.	19.	24.18	24.35	+0.17								
	6.	4.	36.	32.8	I.	7.	35.	19.42	19.79	+0.37								
	13.	9.	58.	53.5	I.	13.	26.	8.95	8.77	-0.18	N.	103.	17.	13.05	13.66	+0.61	2.98	10.59
	14.	10.	42.	9.5	I.	14.	13.	28.55	28.52	-0.03	N.	108.	12.	16.97	16.83	-0.14	3.07	9.90
	16.	12.	15.	26.9	II.	15.	54.	54.39	54.56	+0.17	S.	115.	27.	11.03	11.80	+0.77	3.17	8.70
	26.	20.	14.	44.6	II.	0.	34.	56.47	55.46	-1.01								
	27.	21.	5.	4.1	II.	1.	29.	20.80	19.47	-1.33								
June	6.	5.	51.	57.7	I.	10.	53.	10.02	9.84	-0.18								
	7.	6.	34.	46.8	I.	11.	40.	2.63	2.55	-0.08	N.	90.	9.	45.22	43.91	-1.31	2.67	12.22
	8.	7.	16.	21.2	I.	12.	25.	40.44	40.33	-0.11								
	10.	8.	40.	38.4	I.	13.	58.	4.60	4.51	-0.09								
	13.	11.	1.	35.1	I.	16.	31.	14.16	14.09	-0.07	S.	116.	53.	44.07	44.08	+0.01	3.18	8.47
	14.	11.	52.	36.5	I.	17.	26.	20.46	20.09	-0.37	S.	117.	52.	47.88	48.71	+0.83	3.19	8.32
	22.	18.	8.	1.2	II.	0.	14.	19.27	18.93	-0.34								
	23.	18.	55.	6.4	II.	1.	5.	28.77	28.68	-0.09	N.	78.	46.	13.61	3.54	-10.07	2.32	13.49
July	3.	3.	44.	49.3	I.	10.	32.	7.75	8.63	+0.88								
	7.	6.	37.	58.1							N.	105.	21.	51.44	48.29	-6.15	3.05	10.89
	10.	8.	57.	8.9	I.	16.	12.	54.61	54.98	+0.37	N.	116.	22.	13.75	8.19	-5.56	3.18	8.65
	11.	9.	47.	45.6	I.	17.	7.	36.09	35.95	-0.14	N.	117.	46.	12.67	8.09	-4.58	3.19	8.43
	13.	11.	30.	48.9	I.	18.	58.	49.48	49.31	-0.17	S.	116.	25.	36.74	31.02	-2.72	3.21	8.62
	14.	12.	20.	52.5	I.	19.	52.	57.89	57.88	-0.01	S.	113.	43.	26.40	23.36	-3.04	3.19	9.10
					II.	19.	52.	57.92	57.88	-0.04								
	15.	13.	8.	53.7	II.	20.	45.	3.52	3.72	+0.20	N.	109.	50.	52.37	49.31	-3.06	3.15	9.82
16.	13.	54.	47.5	II.	21.	35.	1.43	1.91	+0.48	N.	105.	0.	29.26	26.75	-2.51	3.08	10.56	
Aug.	3.	4.	32.	42.6	I.	13.	22.	22.23	22.46	+0.23	N.	103.	25.	3.74	6.02	+2.29	3.04	10.76
	4.	5.	17.	2.5	I.	14.	10.	45.75	45.87	+0.12	N.	108.	25.	14.07	11.60	-2.38	3.11	9.98
	6.	6.	51.	8.8	I.	15.	53.	0.80	0.77	-0.03	N.	115.	37.	46.84	40.95	-5.89	3.18	8.80
	7.	7.	41.	13.0	I.	16.	47.	9.76	9.79	+0.03								
	8.	8.	32.	36.9	I.	17.	42.	38.73	38.57	-0.16	S.	118.	1.	26.95	24.77	-2.18	3.21	8.33
	9.	9.	24.	16.8	I.	18.	38.	23.65	23.41	-0.24	S.	117.	8.	55.84	51.35	-4.49	3.21	8.51
	11.	11.	4.	11.5	I.	20.	26.	27.71	27.60	-0.11	S.	111.	23.	8.03	5.90	-2.13	3.19	9.54
	13.	12.	36.	38.9							N.	101.	22.	9.93	6.06	-3.87	3.03	11.14
	14.	13.	20.	53.2	II.	22.	55.	21.74	22.14	+0.40								
	15.	14.	4.	59.3							N.	88.	57.	62.47	59.62	-2.85	2.68	12.58
	20.	18.	23.	5.0	II.	4.	22.	0.49	1.23	+0.74	N.	63.	11.	15.57	12.66	-2.91	1.52	13.65
	23.	21.	30.	57.1	II.	7.	42.	15.14	15.27	+0.13								
	Sept.	1.	3.	55.	47.9	I.	14.	39.	41.52	41.94	+0.42	N.	110.	56.	59.48	64.08	+4.60	3.16
3.		5.	37.	10.5	I.	16.	23.	13.25	12.99	-0.26	N.	116.	54.	5.96	5.00	-0.87	3.20	8.60
5.		7.	15.	42.0	I.	18.	15.	54.72	53.92	-0.80	S.	117.	39.	54.60	53.92	-0.61	3.21	8.40
8.		9.	44.	16.3	I.	20.	56.	45.08	42.81	-2.27	S.	108.	48.	51.09	30.89	-20.20	3.17	9.99
11.		12.	0.	28.3	I.	23.	25.	7.08	7.09	+0.01	S. & N.	91.	26.	11.88	9.39	-2.49	2.80	12.42
					II.	23.	25.	6.94	7.09	+0.15								
12.		12.	46.	4.4	II.	0.	14.	47.30	47.37	+0.07	N.	84.	52.	25.43	19.25	-6.20	2.56	13.05
13.		13.	33.	36.9	II.	1.	6.	25.98	24.56	-1.42	N.	78.	26.	35.64	33.92	-1.72	+2.29	+13.45

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF THE MOON, *continued.*

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Error of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Error of Tables.	Effect of increas- ing Pa- rallax $\frac{1}{1000}$	Effect of assuming the Earth Spherical
d. h. m. s.		h. m. s.	s.	s.		° ' "	"	"	"	"
Sept. 20. 20. 20. 31,2	II.	8. 22. 1,12	1,71	+ 0,59						
Oct. 4. 6. 47. 19,3	I.	19. 41. 47,40	46,96	- 0,14	S.	114. 16. 61,95	58,59	- 3,36	+ 3,19	+ 9,00
6. 8. 21. 42,2	I.	21. 24. 18,91	18,45	- 0,46	S.	106. 0. 47,49	44,41	- 3,08	3,12	10,40
7. 9. 6. 53,9	I.	22. 13. 34,56	33,88	- 0,68	S.	100. 30. 48,09	44,45	- 3,64	3,04	11,25
8. 9. 51. 43,0	I.	23. 2. 27,65	27,40	- 0,25	S.	94. 22. 31,15	27,56	- 3,59	2,90	12,08
9. 10. 37. 13,5	I.	23. 52. 2,16	1,99	- 0,17	S.	87. 50. 61,71	58,09	- 3,62	2,70	12,82
10. 11. 24. 36,7	I.	0. 43. 29,64	29,77	+ 0,13	S. & N.	81. 14. 59,54	54,39	- 5,15	2,45	13,40
11. 12. 15. 6,2	II.	1. 38. 4,05	4,50	+ 0,45	N.	74. 57. 34,69	28,37	- 6,32	2,16	13,76
12. 13. 9. 42,7	II.	2. 36. 46,09	46,74	+ 0,65	N.	69. 26. 38,24	32,56	- 5,68	1,88	13,89
Nov. 2. 6. 13. 38,1	I.	21. 2. 20,78	20,87	+ 0,09	S.	107. 55. 19,89	11,32	- 8,57	3,12	10,00
4. 7. 42. 3,2	I.	22. 38. 53,53	53,46	- 0,07	S.	97. 10. 64,70	52,69	- 12,01	2,94	11,62
7. 10. 0. 18,6	I.	1. 9. 51,36	51,28	- 0,08	S.	78. 2. 2,62	0,76	(-1,86)*	2,33	13,62
8. 10. 53. 52,2	I.	2. 7. 0,22	0,24	+ 0,02	S.	72. 4. 14,53	8,25	- 6,28	2,06	13,94
9. 11. 52. 5,5	I.	3. 9. 19,73	20,10	+ 0,37	N.	67. 6. 39,75	32,98	- 6,77	1,78	14,05
10. 12. 55. 13,4	II.	3. 9. 19,56	20,10	+ 0,54	N.	63. 43. 52,84	48,77	- 4,07	1,59	14,02
16. 18. 44. 45,0	II.	4. 16. 34,42	35,22	+ 0,80	N.	63. 43. 52,84	48,77	- 4,07	1,59	14,02
19. 20. 55. 20,8	II.	10. 30. 42,79	43,76	+ 0,97	S.	81. 55. 9,72	23,07	+ 13,35	2,43	13,05
27. 2. 34. 16,7	I.	12. 53. 29,72	30,16	+ 0,44						
28. 3. 22. 35,5	I.	19. 0. 57,19	58,28	+ 1,09						
Dec. 2. 6. 18. 18,7	I.	19. 53. 20,56	21,38	+ 0,82						
3. 7. 1. 45,2	I.	23. 5. 18,89	19,27	+ 0,38	S.	93. 30. 48,18	40,63	- 7,55	2,81	11,94
4. 7. 47. 27,8	I.	23. 52. 49,04	49,44	+ 0,40	S.	87. 19. 53,49	44,16	- 9,33	2,64	12,64
6. 9. 31. 35,7	I.	0. 42. 35,73	36,49	+ 0,76	S.	81. 2. 48,81	37,42	- 11,39	2,42	13,25
9. 12. 45. 42,1	II.	2. 34. 53,77	54,71	+ 0,94	S.	69. 32. 32,64	25,23	- 7,41	1,93	13,96
		6. 1. 21,80	22,63	+ 0,83	N.	62. 40. 15,64	13,27	- 2,37	+ 1,54	+ 14,11

\* An imperfect observation.

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF MERCURY.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Error of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Error of Tables.
d. h. m. s.		h. m. s.	s.	s.	° ' "	"	"
Jan. 1. 22. 28. 58,9	II.	17. 13. 55,69	55,86	- 0,33			
6. 22. 25. 16,3	II.	17. 29. 55,28	54,80	- 0,48	111. 25. 31,46	32,40	+ 0,94
10. 22. 27. 23,0	II.	17. 47. 48,55	48,27	- 0,28	112. 11. 22,81	24,13	+ 1,32
12. 22. 29. 36,3	II.	17. 57. 55,31	54,77	- 0,54			
15. 22. 34. 0,6	II.	18. 14. 9,97	9,79	- 0,18	112. 55. 33,32	56,09	+ 2,77
26. 22. 57. 20,3	II.	19. 20. 55,70	55,87	+ 0,17	113. 4. 46,19	49,59	+ 3,10
29. 23. 4. 56,1	II.	19. 40. 22,36	21,95	- 0,41	112. 41. 42,53	45,96	+ 3,43
Feb. 12. 23. 43. 38,5	II.	21. 14. 22,98	23,19	+ 0,21	108. 11. 5,83	8,38	+ 2,55
13. 23. 46. 32,9					107. 41. 8,42	10,10	+ 1,68
28. 0. 28. 26,0	I.	22. 58. 26,13	25,78	- 0,35			
29. 0. 31. 28,0	I.	23. 5. 25,25	25,17	- 0,08	97. 22. 30,43	29,83	- 0,60
Mar. 2. 0. 37. 30,4	I.	23. 19. 21,66	22,05	+ 0,39	95. 38. 33,95	33,36	- 0,59
4. 0. 43. 27,7	I.	23. 33. 13,12	13,34	+ 0,22	93. 51. 13,61	10,69	- 2,92
5. 0. 46. 22,9	I.	23. 40. 5,29	5,45	+ 0,16	92. 56. 33,99	31,60	- 2,39
6. 0. 49. 14,6	I.	23. 46. 53,99	54,19	+ 0,20	92. 1. 30,93	26,80	- 4,13
7. 0. 52. 2,2	I.	23. 53. 38,59	38,66	+ 0,07	91. 6. 11,66	7,40	- 4,26
10. 0. 59. 48,1	I.	0. 15. 15,16	15,57	+ 0,11	88. 20. 56,85	52,09	- 4,76
13. 1. 6. 11,7	I.	0. 31. 29,77	29,89	+ 0,12	85. 41. 63,72	59,43	- 4,29
16. 1. 10. 32,0	I.	0. 47. 40,49	40,44	- 0,05	83. 16. 64,64	57,74	- 6,90

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF MERCURY, *continued.*

	Greenwich Mean Solar Time of Transit of Center.				Limb Observed.	R.A. of Center from Observation.			Seconds of Tabular R.A.	Error of Tables.	N.P.D. of Center from Observation			Seconds of Tabular N.P.D.	Error of Tables.																														
	d.	h.	m.	s.		h.	m.	s.			°	'	"			d.	"																												
Mar.	24.	1.	7.	2.5	I.	1.	15.	42.84	42.08	- 0.76	78.	49.	59.87	54.22	- 5.65																														
	25.	1.	4.	44.4	I.	1.	17.	20.91	20.37	- 0.54	78.	32.	18.68	13.26	- 5.42																														
Apr.	24.	22.	33.	15.4	II.	0.	53.	6.43	6.21	- 0.22	86.	59.	24.52	31.16	+ 6.64																														
	27.	22.	26.	53.0												86.	55.	42.73	47.78	+ 5.05																									
	30.	22.	22.	34.7																	86.	34.	20.27	25.88	+ 5.61																				
May	1.	22.	21.	33.9	II.	1.	9.	58.85	58.86	+ 0.01	86.	49.	2.52	5.72	+ 3.20																														
	3.	22.	20.	7.2												85.	48.	32.90	35.58	+ 2.68																									
	26.	22.	51.	22.9																	73.	46.	10.41	9.14	- 1.27																				
	27.	22.	54.	48.3																						73.	7.	18.20	18.83	+ 0.63															
	28.	22.	58.	25.9																											72.	28.	43.16	42.23	- 0.93										
	29.	23.	2.	15.6																																71.	50.	29.42	28.82	- 0.60					
	31.	23.	10.	30.8																																					70.	35.	52.40	52.00	- 0.40
	June	5.	23.	34.																																									
16.		0.	29.	53.5	I.	6.	9.	38.48	39.10	+ 0.62	64.	57.	44.51	43.06	- 1.45																														
20.		0.	50.	47.0	I.	6.	46.	21.66	22.24	+ 0.58	65.	5.	43.58	42.38	- 1.20																														
23.		1.	4.	48.9	I.	7.	12.	15.48	16.14	+ 0.66	65.	37.	30.27	30.17	- 0.10																														
July	3.	1.	39.	1.7	I.	8.	25.	59.51	59.92	+ 0.41	69.	16.	36.78	38.74	+ 1.96																														
	9.	1.	50.	1.2	I.	9.	0.	40.10	40.23	+ 0.13	73.	17.	31.62	38.79	+ 4.17																														
	11.	1.	52.	7.0	I.	9.	28.	14.54	14.57	- 0.03																																			
	15.	1.	53.	55.6												77.	50.	45.22	52.94	+ 7.72																									
	20.	1.	51.	31.7							I.	9.	48.	20.47	20.48						+ 0.01	78.	18.	29.94	36.25	+ 6.31																			
	21.	1.	50.	22.8	78.	45.	19.04	25.77	+ 6.73																																				
	22.	1.	49.	0.1						I.						9.	50.	54.14	54.09	- 0.05																									
Aug.	25.	22.	57.	20.6	II.	9.	33.	16.20	16.47	+ 0.27	75.	57.	41.68	38.93	- 2.75																														
	28.	22.	51.	29.0							75.	28.	61.98	58.78	- 3.20																														
	31.	22.	50.	12.7							75.	28.	30.79	28.42	- 2.37																														
Sept.	1.	22.	50.	42.9	II.	9.	37.	43.03	43.08	+ 0.05	75.	35.	24.44	1.66	- 0.78																														
	7.	23.	1.	1.8	II.	10.	11.	42.95	43.27	+ 0.32	77.	24.	11.39	11.35	- 0.04																														
	9.	23.	6.	20.5	II.	10.	24.	55.65	55.70	+ 0.05	78.	24.	34.13	32.96	- 1.17																														
	10.	23.	9.	10.9	II.	10.	38.	34.93	35.19	+ 0.26	78.	58.	25.84	25.83	- 0.01																														
	11.	23.	12.	5.8							79.	34.	18.92	29.19	+ 0.57																														
	16.	23.	27.	4.5							82.	59.	46.84	48.28	+ 1.44																														
Oct.	8.	0.	18.	24.4	I.	13.	27.	34.87	35.12	+ 0.25	99.	1.	25.50	28.71	+ 3.21																														
	9.	0.	20.	24.0	I.	13.	33.	31.32	31.67	+ 0.35	99.	43.	32.28	36.42	+ 4.14																														
	10.	0.	22.	22.6	I.	13.	39.	26.81	26.90	+ 0.09	100.	25.	34.46	7.03	+ 3.57																														
	13.	0.	28.	11.4	I.	13.	57.	6.17	6.26	+ 0.09	102.	25.	39.12	44.16	+ 5.04																														
	14.	0.	30.	5.8	I.	14.	2.	57.48	57.69	+ 0.21	103.	4.	30.79	33.87	+ 3.08																														
	19.	0.	39.	30.6	I.	14.	37.	55.06	55.16	+ 0.10	106.	7.	25.71	29.14	+ 3.43																														
	20.	0.	41.	22.2							106.	41.	40.98	40.55	- 0.43																														
	Nov.	5.	1.	9.							18.6	I.	16.	9.	0.93	0.43	- 0.50	113.	36.	13.42	16.32	+ 2.90																							
7.		1.	12.	1.8	I.	16.	19.	37.65	37.09	- 0.56	108.	2.	48.96	42.26	6.70																														
Dec.	8.	22.	51.	55.1	II.	16.	5.	17.83	16.98	- 0.85																																			
	13.	22.	31.	44.4	II.	16.	4.	46.56	45.42	- 1.14																																			
	14.	22.	29.	31.5	II.	16.	6.	29.92	29.49	- 0.43																																			
	22.	22.	26.	11.0	II.	16.	34.	41.31	40.96	- 0.35																																			

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF VENUS.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.			Seconds of Tabular R.A.	Error of Tables.	N.P.D. of Center from Observation.			Seconds of Tabular N.P.D.	Error of Tables.
		<i>h.</i>	<i>m.</i>	<i>s.</i>			<i>°</i>	<i>'</i>	<i>"</i>		
<i>d.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>		<i>s.</i>	<i>s.</i>	<i>°</i>	<i>'</i>	<i>"</i>		
Jan.	1.20.49.9.2	II.	15.33.49.53	48.81	-0.72						
	6.20.52.3.6	II.	15.56.27.22	26.36	-0.86						
	7.20.52.42.6	II.	16.1.2.98	2.51	-0.47						
	10.20.54.50.3	II.	16.14.60.66	59.90	-0.76	108.25.16.85	19.08	+2.23			
	12.20.56.22.9	II.	16.24.26.56	25.40	-1.16	108.51.60.53	59.89	-0.64			
	15.20.58.51.1	II.	16.38.44.84	44.06	-0.78	109.28.59.51	63.01	+3.50			
	26.21.9.30.4	II.	17.32.48.11	47.70	-0.41	111.9.23.68	27.00	+3.32			
	29.21.12.46.4	II.	17.47.54.28	53.69	-0.59	111.25.49.12	53.63	+4.51			
Feb.	3.21.18.26.2					111.41.47.25	50.37	+3.12			
	10.21.26.41.2	II.	18.49.10.05	9.40	-0.65	111.38.55.03	61.44	+6.41			
	11.21.27.52.0					111.36.6.44	10.45	+4.01			
	12.21.29.3.4					111.32.36.89	42.66	+5.77			
	13.21.30.15.1	II.	19.4.34.24	33.90	-0.34	111.28.31.67	37.97	+6.30			
	17.21.34.59.7	II.	19.25.5.79	5.42	-0.37	111.6.5.25	10.91	+5.66			
	23.21.41.57.9	II.	19.55.44.52	44.21	-0.31	110.14.10.68	17.37	+6.69			
	24.21.43.6.1	II.	20.0.49.43	49.12	-0.31	110.3.27.32	33.68	+6.36			
	26.21.45.20.9	II.	20.10.57.67	57.23	-0.44	109.40.14.90	21.90	+7.00			
	28.21.47.33.0	II.	20.21.3.32	2.80	-0.52	109.14.47.89	53.42	+5.53			
Mar.	1.21.49.42.3	II.	20.31.6.01	5.54	-0.47	108.47.7.55	11.64	+4.09			
	2.21.50.45.7	II.	20.36.6.13	5.78	-0.35	108.32.27.72	31.94	+4.22			
	3.21.51.48.4	II.	20.41.5.61	5.22	-0.39	108.17.17.65	20.35	+2.70			
	4.21.52.50.4	II.	20.46.4.28	3.86	-0.42	108.1.35.15	37.36	+2.21			
	5.21.53.51.5	II.	20.51.2.08	1.65	-0.43	107.45.19.20	23.57	+4.37			
	6.21.54.51.7	II.	20.55.59.07	58.59	-0.48	107.28.35.10	39.28	+4.18			
	9.21.57.47.1	II.	21.10.44.58	44.14	-0.44	106.35.25.92	30.20	+4.28			
	20.22.7.20.6	II.	22.3.41.75	41.75	0.00	102.46.30.77	33.18	+2.41			
	23.22.9.39.4	II.	22.17.50.61	50.05	-0.56	101.35.59.56	61.89	+2.33			
	24.22.10.23.8	II.	22.22.31.66	31.18	-0.48	101.11.50.53	51.80	+1.27			
Apr.	1.22.15.52.8	II.	22.59.33.98	33.61	-0.37	97.48.11.95	13.83	+1.88			
	2.22.16.30.8	II.	23.4.8.63	8.40	-0.23	97.21.39.41	39.94	+0.53			
	3.22.17.8.5	II.	23.8.43.03	42.60	-0.43	96.54.52.91	53.54	+0.63			
	10.22.21.17.3	II.	23.40.28.35	28.16	-0.20	93.42.35.71	36.36	+0.65			
	13.22.23.2.6	II.	23.53.59.56	59.19	-0.37	92.18.14.38	12.56	-1.82			
	14.22.23.31.7	II.	23.58.29.38	29.04	-0.34	91.49.54.17	53.66	-0.51			
	15.22.24.4.6	II.	0.2.58.94	58.72	-0.22	91.21.32.20	30.26	-1.94			
	17.22.25.10.4	II.	0.11.57.96	57.72	-0.24	90.24.35.22	32.67	-2.55			
	22.22.27.54.2	II.	0.34.24.99	24.89	-0.10	88.1.38.56	37.47	-1.09			
	23.22.28.27.2	II.	0.38.54.68	54.57	-0.11	87.33.6.93	2.57	-4.36			
	24.22.29.0.3	II.	0.43.24.46	24.42	-0.04	87.4.31.38	29.27	-2.11			
	26.22.30.7.6	II.	0.52.25.00	24.75	-0.25	86.7.30.63	30.36	-0.27			
	27.22.30.41.4	II.	0.56.55.46	55.31	-0.15	85.39.8.51	6.26	-2.25			
	28.22.31.15.6	II.	1.1.26.32	26.19	-0.13	85.10.48.90	46.46	-2.44			
	30.22.32.25.3	II.	1.10.29.30	29.02	-0.28	84.14.26.20	23.16	-3.04			
May	1.22.23.0.7	II.	1.15.1.30	1.05	-0.25	83.46.24.17	20.96	-3.21			
	3.22.34.12.6	II.	1.24.6.54	6.52	-0.02	82.50.41.15	39.15	-2.00			
	4.22.34.49.4					82.23.5.05	0.95	-4.10			
	15.22.42.18.9	II.	2.19.32.81	32.65	-0.16	77.31.58.78	53.81	-4.97			
	26.22.51.36.5					73.15.19.02	15.95	-3.07			
	27.22.52.33.7	II.	3.17.8.04	7.94	-0.10						
	28.22.53.31.6	II.	3.22.2.63	2.90	+0.27	72.53.36.36	33.43	-2.93			
	29.22.54.31.2	II.	3.26.58.93	58.99	+0.06	72.13.25.33	21.53	-3.80			
	31.22.56.33.5	II.	3.36.54.76	54.56	-0.20	71.34.23.21	20.01	-3.20			
June	2.22.58.40.1	II.	3.46.54.85	54.63	-0.22	70.57.16.84	12.70	-4.14			
	5.23.1.58.2	II.	4.2.3.14	3.03	-0.11	70.5.21.17	17.77	-3.40			
	7.23.4.15.7	II.	4.12.14.09	14.06	-0.03	69.33.23.82	19.75	-4.07			
	15.23.14.6.3	II.	4.53.38.76	38.67	-0.09	67.48.20.33	18.58	-1.75			
	16.23.15.24.2	II.	4.58.53.44	53.41	-0.03						
	19.23.19.22.5	II.	5.14.42.14	42.34	+0.20	67.10.33.61	31.23	-2.38			
	21.23.22.5.4	II.	5.25.18.56	18.50	-0.06	66.55.34.53	31.61	-2.92			



RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF VENUS, *continued.*

Greenwich Mean Solar Time of Transit of Center.				Limb Observed.	R.A. of Center from Observation.			Seconds of Tabular R.A.	Error of Tables.	N.P.D. of Center from Observation.			Seconds of Tabular N.P.D.	Error of Tables.
d.	h.	m.	s.		h.	m.	s.			°	'	"		
July	2	23	37.30,0	I.	6	24	7,85	9,15	+ 1,30*	66	21	48,32	45,09	- 3,23
	6	23	43.11,5	II.	6	45	36,51	36,61	+ 0,10	66	30	24,44	22,44	- 2,00
	14	23	54.16,7	I.	7	28	15,96	16,27	+ 0,31	67	20	56,15	55,15	- 1,00
Aug	3	0	17.20,0	I.	9	6	17,68	17,42	- 0,26	72	5	4,89	7,07	+ 2,18
	5	0	19.23,6	I.	9	16	14,74	14,40	- 0,34	72	46	47,56	46,45	- 1,11
	6	0	20.23,7	I.	9	21	11,50	11,18	- 0,32	73	8	19,09	19,45	+ 0,36
	7	0	21.22,6	I.	9	26	7,15	6,82	- 0,33	73	30	20,87	20,54	- 0,33
	8	0	22.20,3	I.	9	31	1,57	1,34	- 0,23	73	52	48,93	48,73	- 0,20
	12	0	26.0,2							75	27	1,93	0,80	- 1,13
	14	0	27.44,0	I.	10	0	5,47	5,32	- 0,15	76	16	31,34	32,09	+ 0,75
	15	0	28.34,1							76	41	50,96	51,68	+ 0,72
	17	0	30.11,7	I.	10	14	23,26	23,20	- 0,06	77	33	34,85	34,97	+ 0,12
	18	0	30.50,0							77	59	57,19	57,37	+ 0,18
	21	0	33.15,8	I.	10	33	14,12	13,81	- 0,31	79	20	56,44	58,55	+ 2,11
	24	0	35.24,6	I.	10	47	12,94	12,83	- 0,11	80	44	31,26	35,14	+ 0,88
	25	0	36.6,0							81	12	57,23	58,53	+ 1,30
	27	0	37.26,8							82	10	27,82	27,53	- 0,29
Sept.	1	0	40.38,3	I.	11	23	59,87	59,53	- 0,34	84	37	42,29	41,31	- 0,98
	3	0	41.51,1	I.	11	33	5,96	5,72	- 0,24	85	37	43,29	43,81	+ 0,52
	8	0	44.46,9	I.	11	55	45,10	44,94	- 0,16	88	9	50,60	50,90	+ 0,30
	10	0	45.56,0	I.	12	4	47,51	47,00	- 0,51	89	11	13,48	14,70	+ 1,22
	12	0	47.4,4	I.	12	13	49,15	48,64	- 0,51	90	12	47,59	48,90	+ 1,31
	17	0	49.55,4							92	46	50,58	52,40	+ 1,82
Oct.	6	1	2.19,4	I.	14	3	43,98	43,54	0,44	102	9	36,29	37,75	+ 1,46
	7	1	5.3,4							102	37	10,27	11,33	+ 1,08
	9	1	4.41,5	I.	14	17	56,09	55,71	- 0,38	103	31	24,65	24,46	- 0,19
	10	1	5.31,0	I.	14	22	42,26	41,77	- 0,49	103	58	2,09	2,27	+ 0,18
	12	1	7.13,0	I.	14	32	17,62	17,12	- 0,50	104	50	16,10	16,88	+ 0,78
	13	1	8.5,6	I.	14	37	6,91	6,45	- 0,46	105	15	51,38	52,09	+ 0,71
	14	1	9.0,0	I.	14	41	57,71	56,92	- 0,79	105	41	2,58	4,69	+ 2,11
	20	1	14.46,9	I.	15	11	25,28	24,76	- 0,52	108	3	43,68	44,93	+ 1,25
Nov	2	1	29.51,6	I.	16	17	47,68	47,36	0,32	112	11	30,50	31,95	+ 1,45
	5	1	33.48,4	I.	16	33	34,74	34,21	- 0,53	112	54	35,57	36,98	+ 1,41
	6	1	35.9,1	I.	16	38	52,26	51,85	0,41	113	7	40,97	40,59	+ 0,32
	9	1	39.17,2	I.	16	51	50,62	50,27	- 0,35	113	42	49,24	49,32	+ 0,08
	12	1	43.32,5	I.	17	10	56,30	56,04	- 0,26	114	11	45,61	44,66	- 0,95
	16	1	49.21,7	I.	17	32	32,76	32,77	+ 0,01	114	40	16,11	17,01	+ 0,90
	20	1	55.18,6	I.	17	54	16,79	16,37	- 0,42	114	57	1,71	1,96	+ 0,25
	26	2	4.16,7	I.	18	26	55,72	55,47	- 0,25	114	59	31,43	34,73	+ 0,30
	27	2	5.45,8	I.	18	32	21,60	21,49	- 0,11	114	57	22,92	21,14	- 1,78
	28	2	7.14,8	I.	18	37	47,41	47,17	- 0,24	114	54	25,43	22,75	- 2,68
Dec	2	2	13.5,2							114	34	60,52	59,60	- 0,92
	4	2	14.31,6	I.	19	4	48,22	47,92	- 0,30	114	28	16,89	17,71	+ 0,82
	9	2	22.50,1	I.	19	36	47,42	47,39	- 0,03	115	32	57,70	57,48	- 0,22
	15	2	30.30,1	I.	20	8	8,03	7,89	- 0,14	115	12	50,46	49,85	- 0,61
	17	2	32.53,2	I.	20	18	24,67	24,48	- 0,19	115	40	56,96	56,57	- 0,39
	18	2	34.2,4	I.	20	25	30,66	30,70	+ 0,04					

\* Most probably an error of 1' in the observation

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF PALLAS.

Greenwich Mean Solar Time of Transit.	R.A. from Observation.	Seconds of Tabular R.A.	Error of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Error of Tables.
d. h. m. s.	h. m. s.	s.	s.	" " "	" "	" "
June 29 . 12 . 13 . 46,0	18 . 46 . 41,81	50,54	+ 8,73			
July 6 . 11 . 40 . 36,1				67 . 52 . 18,18	13,83	- 4,35
8 . 11 . 30 . 58,0	18 . 39 . 15,77	24,42	+ 8,65			
9 . 11 . 26 . 13,7	18 . 38 . 27,28	35,89	+ 8,61	68 . 5 . 27,65	24,92	- 2,73
10 . 11 . 21 . 29,7	18 . 37 . 39,11	47,72	+ 8,61	68 . 10 . 25,70	20,62	- 5,08
11 . 11 . 16 . 46,4	18 . 36 . 51,51	59,94	+ 8,43	68 . 15 . 40,73	31,91	- 8,82
13 . 11 . 7 . 20,4	18 . 35 . 17,13	25,72	+ 8,59	68 . 26 . 45,87	40,80	- 5,07
31 . 9 . 44 . 31,7	18 . 23 . 12,84	21,04	+ 8,20	70 . 48 . 19,88	6,54	- 13,34
Aug. 1 . 9 . 40 . 4,3	18 . 22 . 41,32	49,32	+ 8,00	70 . 57 . 59,53	48,64	- 10,89
3 . 9 . 31 . 12,5	18 . 21 . 41,14	49,11	+ 7,97	71 . 17 . 52,56	40,34	- 12,22
4 . 9 . 26 . 48,2	18 . 21 . 12,65	20,65	+ 8,00	71 . 27 . 63,52	49,23	- 14,29
6 . 9 . 18 . 3,2	18 . 20 . 19,37	27,07	+ 7,70			

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF CERES.

July 9 . 12 . 47 . 57,8	20 . 0 . 24,86	29,14	+ 4,28	119 . 30 . 63,80	43,71	- 20,09
13 . 12 . 28 . 34,1	19 . 56 . 44,14	48,45	+ 4,31	119 . 52 . 60,31	40,61	- 19,70
16 . 12 . 13 . 57,1	19 . 53 . 54,45	59,28	+ 4,83	120 . 8 . 29,41	12,52	- 16,89

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF JUPITER.

Apr. 17 . 13 . 10 . 10,0	14 . 55 . 26,43	25,95	- 0,48	105 . 21 . 9,66	13,13	+ 3,47
May 14 . 11 . 10 . 46,5	14 . 42 . 10,25	9,87	- 0,38	104 . 23 . 17,58	19,83	+ 2,25
15 . 11 . 6 . 21,7	14 . 41 . 41,37	40,93	- 0,44	104 . 21 . 11,73	14,33	+ 2,60
June 10 . 9 . 13 . 48,2	14 . 31 . 19,86	19,36	- 0,50	103 . 37 . 21,45	24,62	+ 3,17
July 11 . 7 . 8 . 16,8	14 . 27 . 41,17	40,75	- 0,42	103 . 28 . 2,77	5,39	+ 2,62
13 . 7 . 0 . 33,6	14 . 27 . 49,77	49,50	- 0,27	103 . 29 . 21,58	21,99	+ 0,41
Sept. 1 . 4 . 1 . 15,6	14 . 45 . 10,13	9,78	- 0,35	105 . 3 . 39,34	40,35	+ 1,01

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF SATURN.

June 14 . 11 . 34 . 52,3	17 . 8 . 33,36	32,96	- 0,40	111 . 23 . 25,62	44,61	+ 18,99
July 6 . 10 . 1 . 59,1				111 . 17 . 40,78	56,00	+ 15,22
11 . 9 . 41 . 6,3	17 . 0 . 55,77	55,21	- 0,56	111 . 16 . 40,84	58,00	+ 17,16
Aug. 1 . 8 . 14 . 45,5	16 . 57 . 8,51	8,09	- 0,42			
5 . 7 . 58 . 36,6	16 . 56 . 43,10	42,64	- 0,46	111 . 15 . 0,92	15,40	+ 14,48
6 . 7 . 54 . 35,2	16 . 56 . 37,63	37,25	- 0,38			
7 . 7 . 50 . 34,5	16 . 56 . 32,83	32,26	- 0,57	111 . 15 . 5,94	23,00	+ 17,06
8 . 7 . 46 . 33,9	16 . 56 . 28,09	27,67	- 0,42	111 . 15 . 12,60	27,80	+ 15,20
11 . 7 . 34 . 34,8	16 . 56 . 16,69	16,28	- 0,41	111 . 15 . 30,81	46,10	+ 15,29

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF URANUS.

Greenwich Mean Solar Time of Transit.	R.A. from Observation	Seconds of Tabular R.A.	Error of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Error of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ' "	"	"
Aug. 14. 13. 47. 49.2	23. 22. 22.12	27.76	+ 5.64	94. 55. 64.17	39.19	+ 24.98
Sept. 12. 11. 49. 44.4	23. 18. 18.00	23.48	+ 5.43			
Oct. 6. 10. 12. 0.6	23. 14. 55.41	60.83	+ 5.42	95. 42. 80.91	57.49	+ 23.42
7. 10. 7. 57.1	23. 14. 47.80	53.20	+ 5.40	95. 43. 68.77	44.49	+ 24.28
8. 10. 3. 53.4	23. 14. 40.06	45.66	+ 5.60	95. 44. 54.52	30.89	+ 23.63
9. 9. 59. 50.1	23. 14. 32.63	38.22	+ 5.59			
10. 9. 55. 47.0	23. 14. 25.42	30.88	+ 5.46	95. 46. 24.99	1.49	+ 23.50
11. 9. 51. 49.4				95. 46. 68.31	45.79	+ 22.62
Nov. 2. 8. 23. 7.2	23. 12. 11.18	16.51	+ 5.33			
4. 8. 15. 7.4	23. 12. 3.18	8.52	+ 5.34	96. 0. 36.09	11.89	+ 24.20
Dec. 2. 6. 24. 24.5	23. 11. 25.69	51.20	+ 5.51	96. 2. 78.59	55.70	+ 22.89
3. 6. 20. 50.3	23. 11. 27.33	32.58	+ 5.25	96. 2. 66.46	41.30	+ 22.16

## DETERMINATION OF THE POSITION OF THE ECLIPTIC AND OF THE MEAN ERROR OF THE ASSUMED RIGHT ASCENSIONS OF THE FUNDAMENTAL STARS, FROM THE CIRCLE OBSERVATIONS OF THE SUN IN THE YEAR 1840.

The Observations (exclusive of those of single limbs) have been divided into groups, containing the same number of Observations; and the Table below exhibits the means of the days of Observation, and the mean values ( $\alpha$ ) of the Tabular Errors in North Polar Distance, of the several groups, derived from the columns in pages 198—200, together with the Sun's Longitude ( $\lambda$ ) and North Polar Distance ( $\Delta$ ) at the mean noons of the respective days.

Limiting Days of Observation of each group	Mean Day	Mean of the Tabular Errors in N.P.D.	Number of Observa- tions	Sun's Longitude at mean Noon of mean Day.	Sun's N.P.D. at mean Noon of mean Day
Jan. 2. . . . . Jan. 31	Jan. 17	+ 1.49	12	296. 31. 29	110. 52. 9
Feb. 1. . . . . Mar. 4	Feb. 20	+ 0.68	12	330. 58. 43	101. 8. 14
Mar. 5. . . . . Apr. 4	Mar. 19	- 0.29	12	358. 58. 19	90. 24. 22
Apr. 6. . . . . Apr. 24	Apr. 15	- 1.04	12	25. 34. 18	80. 6. 13
Apr. 25. . . . . May 29	May 8	+ 0.47	12	47. 54. 54	72. 48. 48
May 30. . . . . July 7	June 15	+ 0.32	12	84. 21. 53	66. 39. 50
July 8. . . . . Aug. 4	July 22	+ 0.06	12	119. 39. 5	60. 45. 24
Aug. 5. . . . . Aug. 26	Aug. 16	- 0.38	12	143. 36. 25	76. 20. 9
Aug. 27. . . . . Sept. 19	Sept. 7	- 0.01	12	164. 52. 46	84. 2. 20
Sept. 21. . . . . Oct. 13	Oct. 4	+ 0.10	12	191. 19. 4	94. 28. 54
Oct. 14. . . . . Nov. 21	Oct. 31	- 0.08	12	218. 9. 53	104. 14. 32
Nov. 24. . . . . Dec. 18	Dec. 3	+ 0.89	12	251. 28. 2	112. 10. 42

*Formulae of Calculation.*

$$a + m \cos \lambda \operatorname{cosec} \Delta + n \sin \lambda \operatorname{cosec} \Delta + p = 0 \dots (1).$$

And  $I$  being the obliquity of the Ecliptic,

$$\delta \lambda = m \times \operatorname{cosec} I \dots (2). \quad \delta I = n \times \sec I \dots (3). \quad \delta \Delta = a + p \dots (4).$$

The following equations were deduced from the formula (1) by means of the Table above, and each equation is multiplied by the respective number of observations.

First Quarter	{	Jan. 17.....+ 17,88 + 5,7353 $m$ - 11,4907 $n$ + 12 $p$ = 0.
	{	Feb. 20.....+ 8,16 + 10,6947 $m$ - 5,9334 $n$ + 12 $p$ = 0.
	{	Mar. 19.....- 3,48 + 11,9984 $m$ - 0,2136 $n$ + 12 $p$ = 0.
Second Quarter	{	Apr. 15.....- 12,48 + 10,9881 $m$ + 5,2579 $n$ + 12 $p$ = 0.
	{	May 8.....+ 5,64 + 8,4187 $m$ + 9,3221 $n$ + 12 $p$ = 0.
	{	June 15.....+ 3,84 + 1,2834 $m$ + 13,0065 $n$ + 12 $p$ = 0.
Third Quarter	{	July 22.....+ 0,72 - 6,3275 $m$ + 11,1152 $n$ + 12 $p$ = 0.
	{	Aug. 16.....- 4,56 - 9,9409 $m$ + 7,3272 $n$ + 12 $p$ = 0.
	{	Sept. 7.....- 0,12 - 11,6475 $m$ + 3,1472 $n$ + 12 $p$ = 0.
Fourth Quarter	{	Oct. 4.....+ 1,20 - 11,8027 $m$ - 2,3622 $n$ + 12 $p$ = 0.
	{	Oct. 31.....- 0,96 - 9,7340 $m$ - 7,6502 $n$ + 12 $p$ = 0.
	{	Dec. 3.....+ 10,68 - 4,1189 $m$ - 12,2868 $n$ + 12 $p$ = 0.

From the above, new equations are formed by adding and subtracting as indicated below :

$$\begin{aligned} &\text{First Quarter} + \text{Second} + \text{Third} + \text{Fourth} \\ &\quad + 26'',52 - 4,4529 \, m + 9,2392 \, n + 144 \, p = 0. \end{aligned}$$

$$\begin{aligned} &\text{First Quarter} + \text{Second} - \text{Third} - \text{Fourth} \\ &\quad + 12'',60 + 102,6901 \, m + 10,6584 \, n = 0. \end{aligned}$$

$$\begin{aligned} &\text{First Quarter} - \text{Second} - \text{Third} + \text{Fourth} \\ &\quad + 40'',44 + 9,9985 \, m - 89,1130 \, n = 0. \end{aligned}$$

The solution of these equations gives,

$$m = -0'',168; \quad n = +0'',435; \quad p = -0'',217.$$

Hence by equation (2),  $\delta \lambda = -0'',168 \times \operatorname{cosec} 23^\circ.28' = -0'',422$ . Consequently the Sun's longitude as calculated in the Nautical Almanac for 1840, is *less* than the longitude determined by observation, by the mean quantity  $0'',422$ . The mean error of R.A. for the year will be found by calculation to be  $0'',417$ .

Hence the mean Error of the Tabular Right Ascension (in time) =  $-0^s,028$ .

By equation (3),  $\delta I = +0'',435 \times \sec 23^\circ.28' = +0'',474$ . Hence the obliquity assumed in the Nautical Almanac is *greater* than that by observation by  $0'',474$ .

The value of  $p$  shews that within the Tropics the North Polar Distances, determined by the Circle observations and calculations contained in this Volume, should be *increased* by the mean quantity  $0'',217$ .

The mean Error of the Solar Tables in Right Ascension for the year, as derived from 132 Tabular errors in pages 198—200, (observations of single limbs being excluded) will be found to be  $-0^s,046$ .

Hence the assumed R.A. of the fundamental stars are too great by  $-0^s,028 + 0^s,046$  that is, by  $0^s,018$ .

COMPARISONS OF CLOCKS

AND

CHRONOMETERS.

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1840.

°. THE letter *H* is an abbreviation for Hardy, the Transit Clock; *G* for Graham, the Clock in the Dome, commonly used with the Five-feet Equatoreal. *U* and *X* are Sidereal Chronometers, and *W* is a Solar Chronometer, each beating half-seconds.

Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.	Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.
Jan. 13	H.	<i>h. m. s.</i> 2.45.53	W.	<i>h. m. s.</i> 7.17.42,5	Mar. 3	G.	<i>h. m. s.</i> 7.39.30	U.	<i>h. m. s.</i> 7.41.29,0
	H.	2.46.15	W.	7.18. 4,5		G.	7.39.45	U.	7.41.44,0
	G.	2.53.49	W.	7.19. 5,0	Mar. 6	H.	9.24.56	W.	10.26.30,0
	G.	2.54. 7	W.	7.19.23,0		H.			
Jan. 16	H.	2.53.24	W.	7.12. 5,5	Mar. 7	H.	1.56.42,3	X.	2. 0.41,5
	H.	2.53.49	W.	7.12.30,5		H.	1.57.31,3	X.	2. 1.30,5
	G.	3. 0.36	W.	7.13.30,0	Mar. 19	H.	9.31. 9,2	X.	9.36. 1,0
	G.	3. 0.56	W.	7.13.50,0		H.	9.32. 4,3	X.	9.36.56,0
	G.	3.35.17	W.	7.48. 5,0	Apr. 11	H.	11.48.46	W.	10.28.12,2
	G.	3.35.37	W.	7.48.25,0		H.	11.49.13	W.	10.28.39,2
	H.	3.31.41	W.	7.50.16,0		H.	12.14.13	X.	12.16.20,2
	H.	3.32. 4	W.	7.50.39,0		H.	12.15. 9	X.	12.17.16,2
Feb. 7	H.	6. 8.18	X.	6.11.25,0	July 8	H.	21. 3.25	W.	13.53. 1,0
	H.	6. 8.58	X.	6.12. 5,0		H.	21. 4.14	W.	13.53.50,0
Feb. 8	G.	4.14.25	X.	4.17.41,0	July 9	H.	20.11.23	W.	12.57. 5,0
	G.	4.15. 5	X.	4.18.21,0		H.	20.12. 9	W.	12.57.51,0
	H.	4.32.14	X.	4.35.25,5	July 27	H.	13.24.21	X.	13.25.50,6
	H.	4.33. 4	X.	4.36.15,5		H.	21.42.58	X.	21.44.30,0
Feb. 14	G.	7.25.11	W.	9.48.10,5	Aug. 6	H.	20.11.19,3	X.	20.14. 1,0
	G.	7.25.37	W.	9.48.36,5		H.	20.12.23,3	X.	20.15. 5,0
	H.	7.26.50	W.	9.50.32,0	Sept. 3	G.	17.45. 7	W.	6.55.20,5
	H.	7.27.11	W.	9.50.53,0		G.	17.45.42	W.	6.55.55,5
Feb. 24	G.	6.53.28	U.	6.54.31,0		H.	17.49.46	W.	7. 0.40,5
	H.	6.54.59	U.	6.56.23,0		H.	17.50.31	W.	7. 1.25,5
	H.	8.33. 7	X.	8.36.25,5	Oct. 12	G.	0.19.15	X.	0.17.44,8
	H.	8.33.57	X.	8.37.15,5		H.	0.18.47	X.	0.18.59,7
Feb. 25	H.	7.12.24,2	X.	7.15.45,5	Oct. 13	G.	0.46.35	W.	11.15.14,5
	H.	7.13.15,2	X.	7.16.36,5		G.	0.47.17	W.	11.15.56,4
	G.	7.17. 8,2	X.	7.20. 8,5		H.	0.48.22	W.	11.18.48,0
	G.	7.18.40,2	X.	7.21.40,5		H.	0.48.53	W.	11.19.19,0
Feb. 29	G.	7.42.12	U.	7.43.42,5		G.	2. 0.57	W.	12.29.24,4
	G.	7.42.39	U.	7.44. 9,5		G.	2. 1.23	W.	12.29.50,3
	H.	7.43.35	U.	7.45.24,5		H.	2. 6.18	W.	12.36.31,5
	H.	7.44. 0	U.	7.45.49,5		H.	2. 6.47	W.	12.37. 0,5
Mar. 3	H.	7.38. 6	U.	7.40.15,6					
	H.	7.38.25	U.	7.40.34,6					

DIFFERENCES  
OF  
RIGHT ASCENSION AND NORTH POLAR DISTANCE  
OF PALLAS AND ADJACENT STARS,  
OBSERVED WITH THE NORTHUMBERLAND EQUATOREAL;  
AND  
CONCLUDED RIGHT ASCENSIONS AND NORTH POLAR  
DISTANCES OF PALLAS,  
COMPARED WITH THE RIGHT ASCENSIONS AND NORTH POLAR DISTANCES  
INTERPOLATED FROM THE NAUTICAL ALMANAC.

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1840.



Day and Month 1840.	Number of Series.	Object.	Micrometer.	Micrometer Reading.	Time by Chronometer.	Sidereal Time.	Difference of Micrometer readings in arc.	Apparent Excess of R.A. of Pallas above R.A. of $\star$ .	Observer.
				r.	h. m. s.	h. m. s.	"	s.	
July 8	1	Pallas. $\star$ (a)	B. A.	19,163 16,882	13 . 29 . 45	20 . 41 . 3,9	271,77	+ 19,53	C.
July 9	2	Pallas. $\star$ (a)	A. B.	18,128 22,707	11 . 55 . 10	19 . 10 . 18,6	352,70	- 25,34	C.
	3	Pallas. $\star$ (a)	A. B.	19,323 21,675	11 . 59 . 57	19 . 15 . 6,4	355,47	- 25,53	C.
	4	Pallas. $\star$ (a)	A. B.	19,343 21,675	12 . 3 . 4	19 . 18 . 13,9	355,81	- 25,56	C.
	5	Pallas. $\star$ (a)	A. B.	20,067 21,018	12 . 7 . 35	19 . 22 . 45,6	356,95	- 25,64	C.
	6	Pallas. $\star$ (a)	A. B.	19,968 21,408	12 . 13 . 55	19 . 29 . 6,7	361,88	- 25,99	C.
	7	Pallas. $\star$ (a)	A. B.	19,968 21,489	12 . 17 . 39	19 . 32 . 51,3	363,26	- 26,09	C.
Aug. 6	8	$\star$ (c) Pallas.	A. B.	11,765 13,602	19 . 37 . 27	19 . 35 . 34,8	90,57	- 6,36	C.
	9	$\star$ (c) Pallas.	A. B.	12,103 13,301	19 . 40 . 23	19 . 38 . 30,8	91,20	- 6,40	C.
	10	$\star$ (c) Pallas.	A. B.	11,306 14,340	19 . 56 . 42	19 . 54 . 49,8	95,30	- 6,69	C.

The illuminated side of the Telescope was West. The micrometer wires being first equatorially adjusted were turned by the position circle through  $90^\circ$ . The micrometer head marked B was westward on July 8 and 9, and eastward on Aug. 6, the Telescope looking southward. One micrometer revolution of each micrometer =  $16''.970$ . The reading of A being  $10',000$ , the coincidence reading of B used on July 8 and Aug. 6 =  $10',030$ , and on July 9 =  $10',051$ . For an account of these values of the coincidence reading, and for the mean R.A. of the stars, see Introduction. The solar chronometer W was used on July 8 and 9, and the sidereal chronometer X on Aug. 6.

Hour angle West from the Meridian.	Correction for Parallax.	Geocentric Excess of R.A. of Pallas above R.A. of $\star$ .	Assumed R.A. of $\star$ .	Concluded R.A. of Pallas.	Greenwich Mean Solar Time of Observation of Pallas.	Seconds of Tabular R.A.	Error of Tabular R.A.
h. m.	s.	s.	h. m. s.	h. m. s.	h. m. s.	s.	s.
2. 2,2	+ 0,07	+ 19,60	18. 38. 51,72	18. 39. 11,32	13. 32. 26,1	20,31	+ 8,99
0. 31,3	+ 0,02	- 25,32	18. 38. 51,72	18. 38. 26,40	11. 57. 59,8	34,83	+ 8,43
0. 36,3	+ 0,02	- 25,51	.....	18. 38. 26,21	12. 2. 46,8	34,67	+ 8,46
0. 39,4	+ 0,03	- 25,53	.....	18. 38. 26,19	12. 5. 53,8	34,56	+ 8,37
0. 43,9	+ 0,03	- 25,61	.....	18. 38. 26,11	12. 10. 24,8	34,41	+ 8,30
0. 50,3	+ 0,03	- 25,96	.....	18. 38. 25,76	12. 16. 44,8	34,20	+ 8,44
0. 54,0	+ 0,03	- 26,06	.....	18. 38. 25,66	12. 20. 28,8	34,08	+ 8,42
1. 15,2	+ 0,04	- 6,32	18. 20. 24,33	18. 20. 18,01	10. 33. 6,3	25,74	+ 7,73
1. 18,1	+ 0,04	- 6,36	.....	18. 20. 17,97	10. 36. 1,9	25,69	+ 7,72
1. 34,4	+ 0,06	- 6,63	.....	18. 20. 17,70	10. 52. 18,2	25,41	+ 7,71

N°. 1. This set was not considered exact.

N°. 2. The same star used as on July 8: it was judged to be of the 8th magnitude.

N°. 4. The micrometer revolutions for Pallas were written down 18.

N°. 8. The star (c) is of about 8,9 magnitude.

N°. 10. The hours of the time by chronometer were written down 20.

Day and Month 1840.	Number of Series.	Object.	Micrometer.	Micrometer Reading.	Time by Chronometer.	Sidereal Time.	Difference of Micrometer readings in arc.	Apparent Excess of N.P.D. of Pallas above N.P.D. of $\star$ .	Observer.
				d. r.	h. m. s.	h. m. s.	" "	" "	
July 8	1	* (a) Pallas.	C.	20.12,822	12.55. 0	20. 6.13,2	9.48,00	- 9.46,67	C.
		* (a)	C.	17.15,256	12.58. 5	20. 9.18,7	9.44,34		
		* (a)	C.	20.12,462	13. 7.18	20.18.33,2			
	2	* (a) Pallas.	C.	20.12,462	13. 7.18	20.18.33,2	9.45,81	- 9.46,25	C.
		* (a)	C.	17.15,112	13. 9. 7	20.20.22,5	9.46,01		
		* (a)	C.	20.12,482	13.12.46	20.24. 2,1			
	3	* (a) Pallas.	C.	20.12,482	13.12.46	20.24. 2,1	9.48,43	- 9.47,70	C.
		* (a)	C.	17.14,874	13.14.55	20.26.11,5	9.46,38		
		* (a)	C.	20.12,280	13.17.27	20.28.43,9			
	4	* (a) Pallas.	C.	20.12,280	13.17.27	20.28.43,9	9.47,89	- 9.47,03	C.
		* (a)	C.	17.14,725	13.19.16	20.30.33,2	9.45,63		
		* (a)	C.	20.12,058	13.21. 3	20.32.20,5			
July 9	5	* (a) Pallas.	A. B.	19,175 19,573	10.56.15	18.11.13,9	5.17,81	- 5.17,93	C.
	6	* (a) Pallas.	A. B.	19,169 19,588	11. 4. 0	18.19. 0,2	5.17,98	- 5.18,10	C.
	7	* (a) Pallas.	A. B.	19,175 19,530	11.10. 5	18.25. 6,2	5.17,10	- 5.17,22	C.
	8	* (a) Pallas.	A. B.	18,660 19,662	11.42.42	18.57.48,5	5.10,60	- 5.10,72	C.
	9	* (a) Pallas.	A. B.	18,659 19,632	11.46.56	19. 2. 3,2	5.10,08	- 5.10,19	C.
July 27	10	Pallas. * (b)	B. A.	15,557 9,014	21. 9.40	21. 8.41,4	1.17,06	- 1.17,10	C.
Aug. 6	11	* (c) Pallas.	A. B.	10,401 11,750	19.27.40	19.25.47,8	0.35,99	- 0.35,99	C.
	12	* (c) Pallas.	A. B.	10,349 11,716	19.30. 7	19.28.14,8	0.34,53	- 0.34,53	C.
	13	* (c) Pallas.	A. B.	10,265 11,704	19.32.37	19.30.44,8	0.32,90	- 0.32,90	C.

The illuminated side of the Telescope was West. The micrometer wire A was equatorially adjusted by the Position Circle. The micrometer-head marked A was uppermost, the Telescope looking southward. One interval ( $d$ ) between the sector divisions =  $204''.258$ . One revolution of the sector microscope-micrometer (C) =  $10''.178$ . One micrometer revolution of each of the micrometers A and B =  $16''.970$ . The reading of A being  $10',000$ , the coincidence reading of B used on July 9 =  $10',019$  and on July 27 and Aug. 6 =  $10',030$ . For an account of these coincidences, and for the assumed N.P.D. of the stars, see Introduction.

The solar chronometer W was used on July 8 and 9, and the sidereal chronometer X on July 27 and Aug. 6.

Hour angle West from the Meridian.	Correction for Parallax.	Geocentric Excess of N.P.D. of Pallas above N.P.D. of $\star$ .	Assumed N.P.D. of $\star$ .	Concluded N.P.D. of Pallas.	Greenwich Mean Solar Time of Observation of Pallas.	Seconds of Tabular N.P.D.	Error of Tabular N.P.D.
A. M.	-	" "	" " "	" " "	A. M. P.	"	"
+ 1.30,1	- 1,71	- 9.48,38	68.10.43,70	68.0.55,32	13.0.46,1	62,20	(+ 6,88) - 3,12
+ 1.41,1	- 1,72	- 9.47,97	.....	68.0.55,73	13.11.48,1	64,30	(+ 8,57) - 1,43
+ 1.47,0	- 1,73	- 9.49,43	.....	68.0.54,27	13.17.36,1	65,40	(+ 11,13) + 1,13
+ 1.51,3	- 1,74	- 9.48,77	.....	68.0.54,93	13.21.57,1	66,22	(+ 11,29) + 1,29
- 0.27,2	- 1,66	- 5.19,59	68.10.43,45	68.5.23,86	10.59.4,8	19,49	- 4,37
- 0.19,5	- 1,66	- 5.19,76	.....	68.5.23,69	11.6.49,8	21,04	- 2,65
- 0.13,4	- 1,65	- 5.18,87	.....	68.5.24,58	11.12.54,8	22,26	- 2,32
+ 0.19,4	- 1,66	- 5.12,38	.....	68.5.31,07	11.45.31,6	28,78	- 2,29
+ 0.23,6	- 1,66	- 5.11,85	.....	68.5.31,60	11.49.45,8	29,63	- 1,97
+ 2.43,2	- 1,92	- 1.19,02	70.13.27,14	70.12.8,12	12.45.16,7	59,50	- 8,62
+ 1.35,5	- 1,80	- 0.37,79	71.49.48,64	71.49.10,85	10.23.20,9	0,16	- 10,69
+ 1.7,9	- 1,80	- 0.36,33	.....	71.49.12,31	10.25.47,5	1,23	- 11,08
+ 1.10,4	- 1,81	- 0.34,71	.....	71.49.13,93	10.28.17,1	2,31	- 11,62

N<sup>o</sup>. 1—4. The clock was moving the Instrument during these observations: each observation of the Planet is therefore compared with the preceding and following observations of the star. It seems probable that the micrometer readings for either the star or the Planet are 1' in error.

N<sup>o</sup>. 10. The star preceded the Planet about 25'.



DIFFERENCES  
OF  
RIGHT ASCENSION AND NORTH POLAR DISTANCE  
OF  
GALLE'S SECOND COMET  
AND ADJACENT STARS,  
OBSERVED WITH THE NORTHUMBERLAND EQUATOREAL,  
AND THE FIVE-FEET EQUATOREAL;  
AND  
CALCULATION OF GEOCENTRIC RIGHT ASCENSIONS AND  
NORTH POLAR DISTANCES OF THE COMET.

---

1840.

## OBSERVATIONS OF RIGHT ASCENSION.

Day of Observation.	Number for Reference.	Object.	Reading of Hour Circle.	Time of Observation by Chronometer X.	Corresponding Sidereal Time.	Approximate Hour Angle West from the Meridian.	Approximate N.P.D. of Object.	Correction for Refraction in lt.A.	Correction for rate of Hour Circle.
1840.			h. m. s.	h. m. s.	h. m. s.	h. m. s.	° ' "	s.	s.
Mar. 19	1	Comet	13. 57. 36	8. 0. 20	7. 56. 27,7	5. 56. 17	67. 35,3	- 8,55	
	2	$\alpha$ Arietis	13. 55. 35	8. 4. 16	8. 0. 23,7	6. 2. 14	67. 17,7	- 8,88	- 0,26
	3	Comet	13. 57. 37	8. 9. 18	8. 5. 25,7	6. 5. 15	67. 35,5	- 9,28	- 0,58
	4	$\alpha$ Arietis	13. 55. 37	8. 12. 48	8. 8. 55,7	6. 10. 46	67. 17,7	- 9,61	- 0,81
	5	Comet	13. 57. 38	8. 17. 7	8. 13. 14,7	6. 13. 4	67. 35,7	- 9,92	- 1,09
	6	$\alpha$ Arietis	13. 55. 37	8. 21. 10	8. 17. 17,7	6. 19. 8	67. 17,7	- 10,34	- 1,35
	7	Comet	13. 57. 40	8. 27. 3	8. 23. 10,7	6. 22. 59	67. 35,9	- 10,73	- 1,74
	8	$\alpha$ Arietis	13. 55. 39	8. 30. 46	8. 26. 53,7	6. 28. 44	67. 17,7	- 11,17	- 1,98

## OBSERVATIONS OF NORTH POLAR DISTANCE.

Day of Observation.	Number for Reference.	Object.	Reading of Sector Microscope.	Time of Observation by Chronometer X.	Corresponding Sidereal Time.	Approximate Hour Angle West from the Meridian.	Approximate N.P.D. of Object.	Correction for Refraction in N.P.D.
1840.			d. r.	h. m. s.	h. m. s.	h. m. s.	° ' "	' "
Mar. 19	9	$\alpha$ Arietis	16. 18,077	8. 36. 57	8. 33. 4,7	6. 34. 55	67. 17,7	+ 3. 26,17
	10	Comet	22. 4,952	8. 42. 9	8. 38. 16,7	6. 38. 4	67. 36,2	+ 3. 38,44
	11	$\alpha$ Arietis	16. 14,924	8. 46. 13	8. 42. 20,7	6. 44. 11	67. 17,7	+ 3. 51,10
	12	Comet	22. 1,731	8. 55. 40	8. 51. 47,7	6. 51. 35	67. 36,3	+ 4. 20,86
	13	$\alpha$ Arietis	16. 10,816	8. 58. 27	8. 54. 34,7	6. 56. 25	67. 17,7	+ 4. 32,71
	14	Comet	22. 0,317	9. 3. 24	8. 59. 31,7	6. 59. 18	67. 36,7	+ 4. 51,86
	15	$\alpha$ Arietis	16. 7,311	9. 6. 12	9. 2. 19,8	7. 4. 10	67. 17,7	+ 5. 6,09
	16	Comet	21. 15,128	9. 13. 32	9. 9. 39,8	7. 9. 26	67. 36,6	+ 5. 42,93
	17	$\alpha$ Arietis	16. 1,849	9. 16. 42	9. 12. 49,8	7. 14. 40	67. 17,7	+ 6. 3,79

The illuminated side of the Telescope was West. During all the observations the Instrument was turning about the Polar axis by the clock-movement, on which account each observation of the comet is compared with the preceding and following observations of the star.

The adopted Hourly rate of the Hour Circle = + 3",92, which is deduced from the Hour Circle readings of Nos. 2 and 8, corrected for refraction.

The refractions are calculated for reading of the Barometer 30",242, and for 35",6 of the free Thermometer.

One interval (*d*) between the Sector divisions = 204",258. One revolution (*r*) of the sector-microscope micrometer = 10",178.



## CALCULATION OF GEOCENTRIC RIGHT ASCENSIONS.

Corrected Difference of Hour Circle Readings.	Apparent Excess of R.A. of Comet above R.A. of $\star$ .	Correction for Parallax in R.A.	Assumed R.A. of $\star$ .	Concluded R.A. of Comet.	Greenwich Mean Solar Time of Observation of Comet.	Interpolated R.A. of Comet.	Error of Interpolated R.A.	Observer.
m. s.	m. s.	s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	s.	
2. 1.59	+ 2. 1.59	+ 0.20	1.58. 9.88	2. 0.11.67	8. 6.21.3	2. 0.10.89	- 0.78	C.
2. 1.28								
2. 0.56	+ 2. 0.92	+ 0.20	.....	2. 0.11.00	8.15.17.8	2. 0.11.57	+ 0.57	C.
2. 0.41								
2. 1.68	+ 2. 1.04	+ 0.20	.....	2. 0.11.12	8.23. 5.5	2. 0.12.15	+ 1.03	C.
2. 2.22								
2. 1.68	+ 2. 1.95	+ 0.20	.....	2. 0.12.03	8.32.59.9	2. 0.12.00	+ 0.87	C.

## CALCULATION OF GEOCENTRIC NORTH POLAR DISTANCES.

Corrected Difference of Microscope Readings in arc.	Apparent Excess of N.P.D. of Comet above N.P.D. of $\star$ .	Correction for Parallax in N.P.D.	Assumed N.P.D. of $\star$ .	Concluded N.P.D. of Comet.	Greenwich Mean Solar Time of Observation of Comet.	Interpolated N.P.D. of Comet.	Error of Interpolated N.P.D.	Observer.
" "	" "	"	° ' "	° ' "	h. m. s.	° ' "	"	
18.24.23								
18.51.39	+ 18.27.81	- 3.54	67.17.43.31	67.36. 7.58	8.48. 3.4	67.36.32.40	+ 24.82	C.
18.41.03								
18.41.23	+ 18.41.13	- 3.60	.....	67.36.20.84	9. 1.32.2	67.36.50.48	+ 29.64	C.
18.57.84								
19. 0.13	+ 18.58.98	- 3.64	.....	67.36.38.65	9. 9.14.9	67.37. 0.80	+ 22.15	C.
18.57.69								
18.55.58	+ 18.56.64	- 3.68	.....	67.36.36.27	9.19.21.4	67.37.14.56	+ 38.09	C.

N°. 3. Before reading off, the Hour Circle was inadvertently unclamped, but the reading does not appear to be affected.

N°. 11. Before this observation the clamp of the declination-rod was made faster. I think there had been no slip. Between N°. 11 and 12 the clock was wound up, but continued going.

N°. 14. Not satisfactorily bisected.

N°. 17. The comet was low and very faint.

## 220 OBSERVATIONS OF R.A. OF GALLE'S SECOND COMET WITH THE FIVE-FEET EQUATOREAL.

Day of Observation.	Number for Reference.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Reduction to Middle Wire.	Approximate Hour angle West from the Meridian.	Approximate N.P.D. of Object.	Correction for Refraction in R.A.
1840.			h. m. s.	h. m. s.	m. s.	h. m. s.	° ' "	s.
Feb. 25	1	Comet	5.45.10	5.44.57,94	+1.32,1	4.43.50	51.36,8	-4,71
	2	ξ Andromedæ	5.59.30,5	5.59.27,46	-1.38,11	4.46.31	45.18,5	-4,87
	3	Comet	5.47.33,5	5.47.30,44	-1.28,98	4.46.22	51.36,8	-4,77
	4	ξ Andromedæ	5.59.30,5	5.59.27,46	-1.38,11	4.46.31	45.18,5	-4,87
	5	Comet	6.21.38,5	6.21.35,49	-1.28,96	5.20.24	51.38,0	-5,55
	6	ξ Andromedæ	{6.31.54,0 6.33.32,0	{6.31.51,00 6.33.29,01	{-1.38,11 -1.38,11	{5.18.55 5.20.33	{45.18,5 45.18,5	{-5,53 -5,56
	7	Comet	6.46.37,0	6.46.34,03	-1.28,94	5.45.16	51.38,8	-6,17
	8	ξ Andromedæ	6.58.24,5	6.58.21,55	-1.38,11	5.45.25	45.18,5	-6,10
Feb. 29	9	Comet	6.32.14,0	6.32.20,78	+1.0,48	5.17.20	55.0,6	-5,50
	10	ν Andromedæ	6.45.38,2	6.45.45,02		5.18.20	49.23,7	-5,42
	11	Comet	6.34.42,3	6.34.49,09	-1.25,13	5.19.44	55.0,7	-5,56
	12	ν Andromedæ	6.47.9,4	6.47.16,23	-1.31,85	5.19.51	49.23,7	-5,45
	13	Comet	6.57.16,0	6.57.22,85	-1.25,11	5.42.15	55.1,5	-6,18
	14	ν Andromedæ	7.9.40,5	7.9.47,38	-1.31,85	5.42.22	49.23,7	-5,97
	15	Comet	7.25.46,0	7.25.52,93	-1.25,09	6.10.39	55.2,6	-7,08
	16	* (I)	7.26.36,0	7.26.42,93	-1.25,04		55.6,0	-7,09
	17	Comet	7.32.59,0	7.33.5,95	-1.25,09	6.17.51	55.3,1	-7,33
	18	* (I)	7.33.48,0	7.33.54,95	-1.25,04		55.6,0	-7,34
Mar. 2	19	Comet	7.36.57,0	7.37.3,96	-1.25,09	6.21.47	55.3,1	-7,48
	20	* (I)	7.37.44,0	7.37.50,96	-1.25,04		55.6,0	-7,48
	21	Comet	8.31.28,0	8.31.44,06	-1.23,48	7.10.16	56.39,5	-10,14
	22	* (II)	8.31.48,0	8.32.4,06	-1.23,48		56.39,1	-10,14
	23	Comet	8.35.27,0	8.35.43,07	-1.23,48	7.14.15	56.39,5	-10,39
	24	* (II)	8.35.47,0	8.36.3,07	-1.23,48		56.39,1	-10,38
	25	Comet	8.39.47,0	8.40.3,08	-1.23,48	7.18.36	56.39,8	-10,67
	26	* (II)	8.40.8,0	8.40.24,08	-1.23,48		56.39,1	-10,67
Mar. 3	27	Comet	7.8.41,0	7.9.2,24	+24,91	5.44.52	57.22,0	-6,34
	28	ν Andromedæ	7.11.55,0	7.12.16,25	+27,63		49.23,7	-5,95
	29	Comet	7.15.29,0	7.15.50,26	+24,91	5.51.38	57.22,3	-6,56
	30	ν Andromedæ	7.18.41,0	7.19.2,28	+27,63		49.23,7	-6,11
	31	Comet	7.21.5,0	7.21.26,29	+24,91	5.57.10	57.22,7	-6,75
	32	ν Andromedæ	7.24.13,0	7.24.34,30	+27,63		49.23,7	-6,24
	33	Comet	7.27.41,0	7.28.2,32	+24,91	6.3.46	57.22,9	-6,99
	34	ν Andromedæ	7.30.49,0	7.31.10,33	+27,63		49.23,7	-6,40
Mar. 4	35	Comet	6.36.13,0	6.36.41,03	+24,71	5.9.45	58.6,6	-5,36
	36	* (III)	6.37.0,0	6.37.28,04	+24,75		57.57,8	-5,35

N<sup>os</sup>. 1 and 2. The comet entering the field at the comb, the star departing.

N<sup>os</sup>. 3 and 4. The comet and star departing.

N<sup>o</sup>. 5. At departure. Extremely faint and doubtful.

N<sup>o</sup>. 6. At middle wire and at departure.

N<sup>os</sup>. 7 and 8. At departure. These were thought good.

N<sup>o</sup>. 9. At comb.

N<sup>o</sup>. 10. At middle wire. The seconds were written down 48,2, but as N<sup>o</sup>. 12 was taken in the same position of the instrument, there must have been an error of 10" in counting, the interval from middle wire to departure being 1<sup>m</sup>.31".

Time of Transit Corrected.	Apparent Excess of R.A. of Comet above R.A. of $\star$ .	Correction for Parallax in R.A.	Assumed R.A. of $\star$ .	Concluded R.A. of Comet.	Greenwich Mean Solar Time of Observation of Comet.	Interpolated R.A. of Comet.	Error of Interpolated R.A.	Observer.
A. M. S.	M. S.	S.	A. M. S.	A. M. S.	A. M. S.	A. M. S.	S.	
5.45.56,44 5.57.44,48	-11.48,04	+0,30	1.12.56,06	1.1.8,32	7.25.38,9	1.1.13,33	+5,01	C.
5.45.56,69 5.57.44,48	-11.47,79	+0,30	.....	1.1.8,57	7.28.11,0	1.1.13,73	+5,16	C.
6.20.0,98 6.31.45,34 6.31.45,47	-11.44,43	+0,31	.....	1.1.11,94	8.2.10,5	1.1.19,06	+7,12	C.
6.44.58,92 6.56.37,34	-11.38,42	+0,31	.....	1.1.17,95	8.27.4,9	1.1.22,96	+5,01	C.
6.33.15,76 6.45.39,60	-12.23,84	+0,28	1.27.25,24	1.15.1,68	7.57.10,4	1.15.8,98	+7,30	C.
6.33.18,40 6.45.38,93	-12.20,53	+0,28	.....	1.15.4,99	7.59.38,3	1.15.9,31	+4,32	C.
6.55.51,56 7.8.9,56	-12.18,00	+0,28	.....	1.15.7,52	8.22.8,3	1.15.12,30	+4,78	C.
7.24.20,76 7.25.10,80	-0.50,04	+0,29	1.16.4,20	1.15.14,45	8.50.33,7	1.15.16,07	+1,62	G.
7.31.33,53 7.32.22,57	-0.49,04	+0,28	.....	1.15.15,44	8.57.45,6	1.15.17,03	+1,59	G.
7.35.31,39 7.36.18,44	-0.47,05	+0,28	.....	1.15.17,43	9.1.42,9	1.15.17,55	+0,12	G.
8.30.10,44 8.30.50,44	-0.20,00	+0,26	1.21.48,16	1.21.28,42	9.48.22,3	1.21.31,03	+2,61	G.
8.34.9,20 8.34.29,21	-0.20,01	+0,26	.....	1.21.28,41	9.52.20,6	1.21.31,52	+3,11	G.
8.38.28,93 8.38.49,93	-0.21,00	+0,26	.....	1.21.27,42	9.56.39,9	1.21.32,03	+4,63	G.
7.0.20,81 7.12.37,93	-3.17,12	+0,27	1.27.25,21	1.24.8,36	8.21.58,1	1.24.14,49	+6,13	G.
7.16.8,61 7.19.23,80	-3.15,19	+0,27	.....	1.24.10,29	8.28.45,0	1.24.15,29	+5,00	G.
7.21.44,45 7.24.53,69	-3.11,24	+0,27	.....	1.24.14,24	8.34.20,1	1.24.15,95	+1,71	G.
7.28.20,24 7.31.31,56	-3.11,32	+0,27	.....	1.24.14,16	8.40.55,0	1.24.16,74	+2,58	G.
6.57.0,38 6.57.47,44	-0.47,06	+0,26	1.27.43,21	1.26.56,41	7.45.46,8	1.26.58,31	+1,90	G.

N<sup>o</sup>. 11—26. All taken at departure.

N<sup>o</sup>. 17. Satisfactory: more so than N<sup>o</sup>. 15.

N<sup>o</sup>. 19 and 20. Good.

N<sup>o</sup>. 25. Unsatisfactory. Faint from clouds.

N<sup>o</sup>. 27—47. All taken at wire I. The comet now bears some illumination of the field.

N<sup>o</sup>. 29. Good.

N<sup>o</sup>. 33. Not so satisfactory as the others of this day.

N<sup>o</sup>. 33—40. These were thought to be not very good, the comet being not sufficiently well defined for ready bisection.

## 222 OBSERVATIONS OF R.A. OF GALLE'S SECOND COMET WITH THE FIVE-FEET EQUATOREAL.

Day of Observation.	Number for Reference.	Object.	Time of Observation by Graham or Chronometer.	Corresponding Sidereal Time.	Reduction to Middle Wire.	Approximate Hour angle West from the Meridian.	Approximate N.P.D. of Object.	Correction for Refraction in R.A.
1840.			<i>h. m. s.</i>	<i>h. m. s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>° ' "</i>	<i>s.</i>
Mar. 4	37	Comet * (III)	6.38.32,0	6.39.0,04	+24,71	5.12.4	58.6,6	-5,42
	38		6.39.19,0	6.39.47,05	+24,75		57.57,8	-5,42
	39	Comet * (III)	6.40.38,0	6.41.6,05	+24,71	5.14.9	58.6,7	-5,48
	40		6.41.24,0	6.41.52,06	+24,75		57.57,8	-5,47
Mar. 6	41	Comet * (IV)	7.30.11,0	7.30.59,25	+24,33	5.58.39	59.35,3	-7,19
	42		7.30.59,0	7.31.47,26	+24,31		59.40,2	-7,20
	43	Comet * (IV)	7.32.52,0	7.33.40,27	+24,33	6.1.19	59.35,3	-7,30
	44		7.33.39,0	7.34.27,28	+24,31		59.40,2	-7,31
	45	Comet * (IV) α Trianguli	10.11.10,0	9.10.11,70	+24,32	7.37.43	59.38,4	-14,21
	46		10.11.50,0	9.10.51,80	+24,31		59.40,2	-14,24
	47		10.22.40,0	9.21.43,60	+23,94		61.12,1	-15,81
Mar. 7	48	Comet α Trianguli	8.28.38,0	8.28.38,00		6.53.42	60.18,9	-10,32
	49		8.37.40,0	8.37.40,00			61.12,1	-10,68
	50	Comet α Trianguli	8.44.32,0	8.42.38,42		7.7.40	60.19,3	-11,45
	51		8.53.32,0	8.51.38,39			61.12,1	-11,93
Mar. 19	52	α Arietis	{ 7.42.32,7 7.42.55,4 7.43.18,0	{ 7.40.51,29 7.41.13,99 7.41.36,59	{ +22,74  -22,88	{ 5.42.41 5.43.4 5.43.27	67.17,7	{ -7,65 -7,67 -7,69
	53	Comet	7.44.53,4	7.43.11,98		5.43.4		-7,74
	54	α Arietis	7.48.49,0	7.47.7,57	+22,74	5.48.58	67.17,7	-8,01
	55	Comet	7.50.46,0	7.49.4,57	+22,69		67.34,8	-8,08
	56	α Arietis	7.53.20,8	7.51.39,36	+22,74	5.53.29	67.17,7	-8,29
	57	Comet	7.55.18,6	7.53.37,15	+22,69		67.35,2	-8,37
	58	α Arietis	7.57.0,4	7.55.18,95	+22,74	5.57.9	67.17,7	-8,53
	59	Comet	7.58.58,8	7.57.17,34	+22,69		67.35,1	-8,61
	60	α Arietis	8.0.36,0	7.58.54,54	+22,74	6.0.45	67.17,7	-8,77
	61	Comet	8.2.34,0	8.0.52,53	+22,69		67.35,4	-8,86
Mar. 24	62	Comet * (V)	7.57.8,0	7.56.6,55	+22,30	5.47.25	70.8,4	-8,71
	63		8.1.35,0	8.0.33,54	+22,29		70.14,8	-8,74
	64	Comet θ <sup>1</sup> Arietis	8.6.6,0	8.5.4,52	+22,30	5.56.23 5.56.45	70.8,7	-9,40
	65		8.7.1,0	8.5.59,52			70.50,4	-9,71
	66	Comet θ <sup>1</sup> Arietis	8.10.33,0	8.9.31,51	+22,30	6.0.50 6.1.23	70.8,7	-9,80
	67		8.11.39,0	8.10.37,51	-11,17		70.50,4	-10,14
	68	Comet θ <sup>1</sup> Arietis	8.16.52,0	8.15.50,49	+22,30	6.7.9 6.7.31	70.8,8	-10,39
	69		8.17.46,5	8.16.44,99			70.50,4	-10,77

N°. 41—47. The comet was somewhat brighter, with a better defined centre.

N°. 45—47. Graham having stopped, these were taken with chronometer W. The comet was approaching the horizon, and this series is consequently not so good as the two preceding.

N°. 48—51. All taken at Wire III. The comet was low and faint, and the observations of this evening are in some degree uncertain.

N°. 48 and 49. Graham was set going and used for these, but having stopped immediately after, chronometer U was used for the remaining observations of this day, and for the observations of March 19 and 24.

N°. 50. Very doubtful.

Time of Transit Corrected.	Apparent Excess of R.A. of Comet above R.A. of $\star$ .	Correction for Parallax in R.A.	Assumed R.A. of $\star$ .	Concluded R.A. of Comet.	Greenwich Mean Solar Time of Observation of Comet.	Interpolated R.A. of Comet.	Error of Inter- polated R.A.	Observer.
h. m. s.	m. s.	s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	s.	
6.39.19.53 6.40. 6.38	-0.47.05	+0.26	1.27.43.21	1.26.56.42	7.48. 4.9	1.26.58.58	+2.16	G.
6.41.25.28 6.42.11.34	-0.46.06	+0.26	.....	1.26.57.41	7.50.10.6	1.26.58.82	+1.41	G.
7.31.16.39 7.32. 4.37	-0.47.98	+0.25	1.33. 8.58	1.32.20.85	8.32. 3.8	1.32.22.66	+1.81	G.
7.33.57.30 7.34.44.28	-0.46.98	+0.25	.....	1.32.21.85	8.34.44.4	1.32.22.94	+1.00	G.
9.10.21.81 9.11. 1.87 9.21.51.73	-0.40.06 -11.29.92	+0.23	1.33. 8.58 1.43.58.32	1.32.28.75 1.32.28.63	10.11. 0.0	1.32.33.24	+4.49 +4.61	G.
8.28.27.68 8.37.29.32	-9. 1.64	+0.24	1.43.58.30	1.34.56.90	9.25.37.2	1.34.59.99	+3.09	G.
8.42.26.97 8.51.26.46	-8.59.49	+0.24	.....	1.34.59.05	9.39.35.3	1.35. 1.43	+2.38	G.
7.41. 6.38 7.41. 6.32 7.41. 6.02 7.43. 4.24	+1.58.00	+0.20	1.58. 9.88	2. 0. 8.08	7.53. 7.7	2. 0. 9.90	+1.82	G.
7.47.22.30 7.49.19.18	+1.56.88	+0.20	.....	2. 0. 6.96	7.58.59.3	2. 0.10.34	+3.38	G.
7.51.53.81 7.53.51.47	+1.57.66	+0.20	.....	2. 0. 7.74	8. 3.31.2	2. 0.10.68	+2.94	G.
7.55.33.16 7.57.31.42	+1.58.26	+0.20	.....	2. 0. 8.34	8. 7.10.8	2. 0.10.95	+2.61	G.
7.59. 8.51 8. 1. 6.36	+1.57.85	+0.20	.....	2. 0. 7.93	8.10.45.4	2. 0.11.22	+3.29	G.
7.56.20.14 8. 0.47.49	-4.27.35	+0.19	2.13. 8.66	2. 8.41.50	7.46.20.6	2. 8.44.15	+2.65	G.
8. 3.17.42 8. 3.49.51	-0.32.39	+0.19	2. 9.14.05	2. 8.41.65	7.55.17.1	2. 8.44.76	+2.91	G.
8. 9.44.01 8.10.16.20	-0.32.19	+0.19	.....	2. 8.42.05	7.59.43.4	2. 8.45.06	+3.01	G.
8.16. 2.40 8.16.34.22	-0.31.82	+0.19	.....	2. 8.42.42	8. 6. 1.3	2. 8.45.49	+3.07	G.

N<sup>o</sup>. 52 and 53. Star at wires I, III, and V; comet at wire III.

N<sup>o</sup>. 54—61. All at wire I. The comet would hardly allow of sufficient light to see the wires.

N<sup>o</sup>. 62, 63, 64, 66, and 68. At wire I.

N<sup>o</sup>. 65 and 69 at wire III.

N<sup>o</sup>. 67 at wire IV. The atmosphere on the evening of March 24 was in a state unfavourable for observing so faint an object as this comet: the last observation was thought to be better than the preceding.

Day of Observation.	No. for Ref.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Pointer Reading.	Micrometer or Micrometer.	Micrometer or Micrometer Reading.	Correction for Error of Division.	Correction for Run.	Concluded Reading of Declination Circle.	Apparent Excess of N.P.D. of Comet above N.P.D. of $\star$ .
1840.			<i>h. m. s.</i>	<i>h. m. s.</i>	<i>° ' "</i>		<i>—</i>	<i>—</i>	<i>—</i>	<i>° ' "</i>	<i>° ' "</i>
Feb. 25	1	Comet	5.45.10	5.44.57,9	231.35	A.	3.55,6	4,6	+3,7	231.39.27,65	+6.18.14,40
	2	$\xi$ Andromedæ	5.58.22,1	5.58.19,1	225.20	B.	3.29,9	81,4	+0,1	231.39.27,65	
						A.	0.39,2	7,5	+0,6	225.21.13,25	
						B.	0.6,1	93,1	0,0	225.21.13,25	
	3	Comet	6.18.53,0	6.18.50,0	231.35	A.	5.3,2	4,6	+4,8	231.40.36,20	+6.19.27,40
	4	$\xi$ Andromedæ	6.31.54,0	6.31.51,0	225.20	B.	4.38,2	81,4	+0,2	231.40.36,20	
Feb. 29						A.	0.34,7	7,5	+0,5	225.21.8,80	
						B.	0.1,8	93,1	0,0	225.21.8,80	
	5	Comet	6.44.10,0	6.44.7,0	231.40	A.	0.40,3	5,8	+0,6	231.41.12,30	+6.20.10,70
	6	$\xi$ Andromedæ	6.55.38,5	6.55.35,6	225.20	B.	0.14,3	83,6	0,0	231.41.12,30	
						A.	0.26,5	7,5	+0,4	225.21.1,60	
						B.	4.55,7	93,1	0,0	225.21.1,60	
Feb. 29	7	Comet	6.32.14,0	6.32.20,8	235.0	A.	2.42,1	7,6	+2,5	235.3.13,90	+5.37.3,95
	8	$\nu$ Andromedæ	6.44.44,2	6.44.51,0	229.25	B.	1.58,7	96,8	+0,1	235.3.13,90	
						A.	0.39,2	4,3	+0,6	229.26.9,95	
						B.	0.13,4	82,4	0,0	229.26.9,95	
	9	Comet	6.54.51,6	6.54.58,4	235.0	A.	3.24,6	7,6	+3,2	235.3.55,85	+5.37.57,85
	10	$\nu$ Andromedæ	7.7.4,7	7.7.11,5	229.25	B.	2.39,4	96,8	+0,1	235.3.55,85	
						A.	0.28,0	4,3	+0,4	229.25.58,00	
						B.	0.0,9	82,4	0,0	229.25.58,00	
	11	Comet	7.23.21,6	7.23.28,5							-0.3.23,14
	12	$\star$ (I)	7.24.11,6	7.24.18,5		U.	16,117				
Mar. 2	13	Comet	7.30.34,6	7.30.41,6							-0.2.54,15
	14	$\star$ (I)	7.31.23,6	7.31.30,6		U.	15,249				
	15	Comet	7.34.32,6	7.34.39,6							-0.2.54,85
	16	$\star$ (I)	7.35.19,6	7.35.26,6		U.	15,270				
Mar. 2	17	Comet	8.29.6,4	8.29.22,5							+0.0.25,45
	18	$\star$ (II)	8.29.26,4	8.29.42,5		L.	10,697				
	19	Comet	8.33.5,4	8.33.21,5							+0.0.25,95
	20	$\star$ (II)	8.33.25,4	8.33.41,5		L.	10,712				
	21	Comet	8.37.25,4	8.37.41,5							+0.0.44,59
	22	$\star$ (II)	8.37.46,4	8.38.2,5		L.	11,270				
Mar. 3	23	Comet	7.8.41,0	7.9.2,2	237.20	A.	4.4,8	6,1	+3,8	237.24.37,20	+7.58.31,85
	24	$\nu$ Andromedæ	7.11.55,0	7.12.16,3	229.25	B.	3.23,2	96,4	+0,1	237.24.37,20	
						A.	0.35,0	4,3	+0,6	229.26.5,35	
						B.	0.8,4	82,4	0,0	229.26.5,35	
	25	Comet	7.15.29,0	7.15.50,3	237.20	A.	4.19,0	6,1	+4,1	237.24.51,85	+7.58.49,35
	26	$\nu$ Andromedæ	7.18.41,0	7.19.2,3	229.25	B.	3.38,0	96,4	+0,1	237.24.51,85	
						A.	0.31,5	4,3	+0,5	229.26.2,50	
						B.	0.6,3	82,4	0,0	229.26.2,50	

In all the observations the graduated face of the Declination Circle was West. U is the micrometer which is uppermost in this position of the instrument, the Telescope looking southward. Reading of U at coincidence with fixed wire =  $10^{\circ}035$ . Coincidence reading of L =  $9^{\circ}935$  at comb, and  $9^{\circ}929$  at wire I. One micrometer revolution of each micrometer =  $33''400$ .

Correction for Run of A =  $+4''7$ . For Run of B =  $+0''2$ .

N°. 2. Bisection at wire V.

N°. 3. Faint and doubtful. Bisection at comb.

Approximate Hour angle West from the Meridian.	Approximate N.P.D. of Object.	Correction for Refraction in N.P.D.	Correction for Parallax in N.P.D.	Assumed N.P.D. of *.	Concluded N.P.D. of Comet.	Greenwich Mean Solar Time of Observation of Comet.	Interpolated N.P.D. of Comet.	Error of Inter- polated N.P.D.	Observer.
h. m. s.	° ' "	"	"	° ' "	° ' "	h. m. s.	° ' "	"	
4. 43. 50	51. 36,8	+ 47,37	- 2,97	45. 18. 30,44	51. 36. 51,45	7. 25. 38,9	51. 36. 47,94	- 3,51	C.
4. 43. 23	45. 18,5	+ 37,79							
5. 17. 47	51. 38,0	+ 58,83	- 3,29	.....	51. 38. 5,98	7. 59. 25,4	51. 38. 2,38	- 3,60	C.
5. 18. 55	45. 18,5	+ 47,42							
5. 42. 58	51. 38,8	+ 69,55	- 3,54	.....	51. 38. 51,51	8. 24. 38,3	51. 38. 57,95	+ 6,44	C.
5. 42. 39	45. 18,5	+ 55,64							
5. 17. 20	55. 0,6	+ 65,34	- 3,32	49. 23. 39,81	55. 0. 52,06	7. 57. 10,4	55. 1. 1,11	+ 9,05	C.
	49. 23,7	+ 53,72							
5. 39. 38	55. 1,5	+ 75,96	- 3,52	.....	55. 1. 47,82	8. 19. 44,8	55. 1. 46,81	- 1,01	C.
5. 39. 46	49. 23,7	+ 62,28							
6. 8. 14	55. 2,6	+ 92,78	- 3,77	55. 6. 2,21	55. 2. 35,09	8. 48. 9,7	55. 2. 44,38	+ 9,29	G.
	55. 6,0	+ 92,99							
6. 15. 26	55. 3,1	+ 97,86	- 3,83	.....	55. 3. 4,03	8. 55. 21,6	55. 2. 58,95	- 5,08	G.
	55. 6,0	+ 98,06							
6. 19. 22	55. 3,1	+ 100,79	- 3,86	.....	55. 3. 3,31	8. 59. 19,0	55. 3. 6,97	+ 3,66	G.
	55. 6,0	+ 100,98							
7. 7. 54	56. 39,5	+ 162,16	- 4,22	56. 39. 7,12	56. 39. 28,40	9. 46. 1,1	56. 39. 40,80	+ 12,40	G.
	56. 39,1	+ 162,11							
7. 11. 53	56. 39,5	+ 168,23	- 4,25	.....	56. 39. 28,87	9. 49. 59,4	56. 39. 48,49	+ 19,62	G.
	56. 39,1	+ 168,18							
7. 16. 14	56. 39,8	+ 175,27	- 4,29	.....	56. 39. 47,52	9. 54. 18,7	56. 39. 56,85	+ 9,33	
	56. 39,1	+ 175,17							
5. 44. 51	57. 22,0	+ 84,30	- 3,54	49. 23. 40,32	57. 22. 29,40	8. 21. 58,1	57. 22. 57,62	+ 28,22	G.
	49. 23,7	+ 63,53							
5. 51. 37	57. 22,5	+ 88,48	- 3,60	.....	57. 22. 48,05	8. 28. 45,0	57. 23. 10,47	+ 22,42	G.
	49. 23,7	+ 66,50							

N°. 5. At comb.

N°. 6. At comb. No correction for Run of R.

N°. 7—22. In all the observations of Feb. 29 and March 2 the objects were bisected on entering at the comb.

N°. 11. The bisection of the comet very uncertain in this observation. N°. 15 was thought better.

N°. 21 and 22. Unsatisfactory from clouds.

N°. 23. From this observation the times of bisection are the same as the times noted in the observations of R.A.

N°. 25. This was considered good.



Day of Observation.	No. for Ref.	Object.	Time of Observation by Graham, or Chronometer.	Corresponding Sidereal Time.	Pointer Reading.	Micrometer or Micrometer Reading.	Correction for Error of Division.	Correction for Run.	Concluded Reading of Declination Circle.	Apparent Excess of N.P.D. of Comet above N.P.D. of $\star$ .
1840.			<i>h. m. s.</i>	<i>h. m. s.</i>	<i>° ' "</i>	<i>° ' "</i>	<i>"</i>	<i>"</i>	<i>° ' "</i>	<i>° ' "</i>
Mar. 3	27	Comet	7.21.50	7.21.26,3	237.20	A. 4.42,4 B. 4.20	6,1 96,4	+4,4 +0,2	237.25.15,75	+7.59.14,00
	28	$\nu$ Andromedæ	7.24.13,0	7.24.34,3	229.25	A. 0.31,9 B. 0.44	4,3 82,4	+0,5 0,0	229.26.1,75	
	29	Comet	7.27.41,0	7.28.2,3	237.20	A. 4.52,0 B. 4.9,1	6,1 96,4	+4,6 +0,2	237.25.24,20	+7.59.24,70
	30	$\nu$ Andromedæ	7.30.49,0	7.31.10,3	229.25	A. 0.28,2 B. 0.3,7	4,3 82,4	+0,4 0,0	229.25.59,50	
Mar. 4	31	Comet	6.36.13,0	6.36.41,0		U. 14,852				+0.8.53,33
	32	$\star$ (III)	6.37.0,0	6.37.28,0		L. 21,080				
	33	Comet	6.38.32,0	6.39.0,0		U. 14,778				+0.8.52,47
	34	$\star$ (III)	6.39.19,0	6.39.47,1		L. 21,128				
	35	Comet	6.40.38,0	6.41.6,1		U. 14,794				+0.8.53,26
	36	$\star$ (III)	6.41.24,0	6.41.52,1		L. 21,136				
Mar. 6	37	Comet	7.30.11,0	7.30.59,3		L. 12,802				-0.4.52,19
	38	$\star$ (IV)	7.30.59,0	7.31.47,3		U. 15,910				
	39	Comet	7.32.52,0	7.33.40,3		L. 12,808				-0.4.52,55
	40	$\star$ (IV)	7.33.39,0	7.34.27,3		U. 15,915				
	41	Comet	10.11.10,0	9.10.11,7	239.35	A. 2.5,8 B. 1.23,2	6,5 97,6	+2,0 +0,1	239.37.37,60	-0.1.49,12
	42	$\star$ (IV)	10.11.50,0	9.10.51,8		U. 13,302				
	43	$\alpha$ Trianguli	10.22.40,0	9.21.43,6	241.10	A. 0.11,8 B. 4.32,4	11,7 94,6	+0,2 0,0	241.10.45,35	-1.33.7,75
Mar. 7	44	Comet	8.28.38,0	8.28.38,0	240.15	A. 4.6,8 B. 3.20,8	6,3 94,7	+3,9 +0,1	240.19.36,30	-0.53.14,80
	45	$\alpha$ Trianguli	8.37.40,0	8.37.40,0	241.10	A. 2.16,7 B. 1.37,0	11,7 94,6	+2,1 +0,1	241.12.51,10	
	46	Comet	8.44.32,0	8.42.38,4	240.15	A. 4.2,2 B. 3.19,9	6,3 94,7	+3,8 +0,1	240.19.33,50	-0.52.49,40
	47	$\alpha$ Trianguli	8.53.32,0	8.51.38,4	241.10	A. 1.49,8 B. 1.8,0	11,7 94,6	+1,7 0,0	241.12.22,90	
Mar. 19	48	$\alpha$ Arietis	7.42.55,4	7.41.14,0	247.15	A. 3.6,0	15,7	+2,9	247.18.24,60	+0.17.45,40
	49	Comet	7.44.53,4	7.43.12,0	247.35	A. 0.53,6 B. 0.24,8	15,6 94,0	+0,8 0,0	247.36.10,00 247.36.34,40	
	50	$\alpha$ Arietis	7.48.49,0	7.47.7,6	247.15	A. 3.33,8 B. 2.58,9	15,7 95,2	+3,4 +0,1	247.19.13,55	+0.17.4,45
	51	Comet	7.50.46,0	7.49.4,6	247.35	A. 0.36,8 B. 0.9,0	15,6 94,0	+0,6 0,0	247.36.18,00	
	52	$\alpha$ Arietis	7.53.20,8	7.51.39,4	247.15	A. 3.27,8 B. 2.57,0	15,7 95,2	+3,3 +0,1	247.19.9,55	+0.17.26,30
	53	Comet	7.55.18,6	7.53.37,2	247.35	A. 0.55,4 B. 0.25,8	15,6 94,0	+0,9 0,0	247.36.35,85	

Graduated face of Declination Circle West. Coincidence reading of U = 10',035. Coincidence reading of L at wire I = 9',929 (used March 4 and 6.) One micrometer revolution = 33'',400.

Correction for Run of A = +4'',7. For Run of B = +0'',2.

N°. 29. Not so satisfactory as the other observations of this evening.

N°. 31—36. The comet observations were thought to be not very good.

N°. 41. The comet was low and the bisection of it uncertain.

Approximate Hour angle West from the Meridian.	Approximate N.P.D. of Object.	Correction for Refraction in N.P.D.	Correction for Parallax in N.P.D.	Assumed N.P.D. of *.	Concluded N.P.D. of Comet.	Greenwich Mean Solar Time of Observation of Comet.	Interpolated N.P.D. of Comet.	Error of Inter- polated N.P.D.	Observer.
h m s.	° ' "	"	"	° ' "	° ' "	h m s.	° ' "	"	
5. 57. 9	57. 22,7 49. 23,7	+ 92,14 + 69,03	- 3,64	49. 23. 40,32	57. 23. 13,79	8. 34. 20,1	57. 23. 21,06	+ 7,27	G.
6. 3. 45	57. 22,9 49. 23,7	+ 96,75 + 72,21	- 3,69	.....	57. 23. 25,87	8. 40. 55,0	57. 23. 33,52	+ 7,65	G.
5. 9. 45	58. 6,6 57. 57,8	+ 68,56 + 68,20	- 3,27	57. 57. 48,47	58. 6. 38,89	7. 45. 46,3	58. 6. 49,11	+ 10,22	G.
5. 12. 4	58. 6,6 57. 57,8	+ 69,59 - 69,23	- 3,28	.....	58. 6. 38,02	7. 48. 4,9	58. 6. 53,40	+ 15,38	G.
5. 14. 9	58. 6,7 57. 57,8	+ 70,34 + 70,17	- 3,30	.....	58. 6. 38,80	7. 50. 10,6	58. 6. 57,28	+ 18,48	G.
5. 38. 39	59. 35,3 59. 40,2	+ 103,14 + 103,47	- 3,61	59. 40. 11,09	59. 35. 14,96	8. 32. 3,8	59. 35. 13,04	- 1,92	G.
6. 1. 19	59. 35,3 59. 40,2	+ 105,27 + 105,61	- 3,63	.....	59. 35. 14,57	8. 34. 44,4	59. 35. 17,77	+ 3,20	G.
7. 37. 43 7. 37. 45	59. 38,4 59. 40,2 61. 12,1	+ 267,07 + 267,71 + 303,31	- 4,30	59. 40. 11,09 61. 12. 5,01	59. 38. 17,03 59. 38. 16,52	10. 11. 0,0	59. 38. 8,16	- 8,87 - 8,36	G.
6. 33. 42	60. 18,9 61. 12,1	+ 170,82 + 179,37	- 3,97	61. 12. 5,12	60. 18. 37,80	9. 25. 37,2	60. 18. 48,15	+ 10,35	G.
7. 7. 40	60. 19,3 61. 12,1	+ 197,25 + 208,22	- 4,06	.....	60. 19. 0,69	9. 39. 35,3	60. 19. 12,32	+ 11,63	G.
5. 43. 4	67. 17,7 67. 35,5	+ 123,64 + 125,25	- 3,29	67. 17. 43,31	67. 35. 27,03 67. 34. 57,10	7. 53. 7,7	67. 35. 18,73	(- 8,30) + 21,63	G.
5. 48. 58	67. 17,7 67. 34,8	+ 130,03 + 131,71	- 3,32	.....	67. 34. 46,12	7. 58. 59,3	67. 35. 26,60	+ 40,48	G.
5. 53. 29	67. 17,7 67. 35,2	+ 135,31 + 137,13	- 3,34	.....	67. 35. 8,11	8. 3. 31,2	67. 35. 32,67	+ 24,56	G.

N°. 43. No correction for Run of B.

N°. 44. Doubtful.

N°. 44—57. The comet being faint, the observations are in some degree doubtful.

N°. 48 and 49. By comparing these with the following observations, it appears very probable that the reading of microscope A for the star was written down by mistake for 336,0. The second concluded N.P.D. of the comet was deduced from the comet observation alone by applying an index error - 3'.39".26, which is the mean of the index errors of a Arietis in the remaining observations of this day.

## 228 OBSERVATIONS OF N.P.D. OF GALLE'S SECOND COMET WITH THE FIVE-FEET EQUATOREAL.

Day of Observation.	No. for Ref.	Object.	Time of Observation by Chronometer U.	Corresponding Sidereal Time.	Pointer Reading.	Microscope or Micrometer.	Microscope or Micrometer Reading.	Correction for Error of Division.	Correction for Run.	Concluded Reading of Declination Circle.	Apparent Excess of N.P.D. of Comet above N.P.D. of $\star$ .
1840.			h. m. s.	h. m. s.	o ' "		$\frac{L}{P}$	"	"	o ' "	o ' "
Mar. 19	54	$\alpha$ Arietis	7.57.0,4	7.55.19,0	247.15	A.	3.21,4	15,7	+3,2	247.19.2,25	+0.17.23,40
	55	Comet	7.58.58,8	7.57.17,3	247.35	B.	2.48,9	95,2	+0,1		
						A.	0.45,0	15,6	+0,7	247.36.25,65	
						B.	0.16,0	94,0	0,0		
	56	$\alpha$ Arietis	8.0.36,0	7.58.54,5	247.15	A.	3.15,2	15,7	+3,1	247.18.56,55	+0.17.36,25
	57	Comet	8.2.34,0	8.0.52,5	247.35	B.	2.43,8	95,2	+0,1		
Mar. 24						A.	0.52,7	15,6	+0,8	247.36.32,80	
						B.	0.22,5	94,0	0,0		
	58	Comet	7.57.8,0	7.56.6,6	250.5	A.	3.39,8	21,0	+3,5	250.9.23,80	-0.6.22,90
	59	$\star$ (V)	8.1.35,0	8.0.33,5		B.	3.14,3	88,9	+0,1		
						U.	21,499				
	60	Comet	8.6.6,0	8.5.4,5	250.5	A.	3.42,3	21,0	+3,5	250.9.26,80	-0.41.49,00
	61	$\theta^1$ Arietis	8.7.1,0	8.5.59,5	250.50	B.	3.17,8	88,9	+0,1		
						A.	0.28,4	23,5	+0,4	250.51.15,80	
						B.	0.3,8	95,5	0,0		
	62	Comet	8.10.33,0	8.9.31,5	250.5	A.	3.36,1	21,0	+3,4	250.9.20,65	-0.41.48,90
	63	$\theta^1$ Arietis	8.11.39,0	8.10.37,5	250.50	B.	3.11,8	88,9	+0,1		
						A.	0.21,2	23,5	+0,3	250.51.9,55	
						B.	4.58,6	95,5	0,0		
	64	Comet	8.16.52,0	8.15.50,5	250.5	A.	3.31,0	21,0	+3,3	250.9.16,65	-0.41.40,55
	65	$\theta^1$ Arietis	8.17.46,5	8.16.45,0	250.50	B.	3.9,0	88,9	+0,1		
						A.	0.10,8	23,5	+0,2	250.50.57,20	
						B.	4.44,4	95,5	0,0		

Graduated face of Declination Circle West. Coincidence reading of U = 10",035. One micrometer revolution = 33",400.

Correction for Run of A = +4",7. For Run of B = +0",2.

Approximate Hour angle West from the Meridian.	Approximate N.P.D. of Object.	Correction for Refraction in N.P.D.	Correction for Parallax in N.P.D.	Assumed N.P.D. of $\star$ .	Concluded N.P.D. of Comet.	Greenwich Mean Solar Time of Observation of Comet.	Interpolated N.P.D. of Comet.	Error of Inter- polated N.P.D.	Observer.
h m s	° ' "	"	"	° ' "	° ' "	h m s	° ' "	"	
5.57. 9	67. 17.7 67. 35.1	+ 139,87 + 141,81	- 3,36	67. 17. 43,31	67. 35. 5,29	8. 7. 10,8	67. 35. 37,58	+ 32,29	G.
6. 0. 45	67. 17.7 67. 35,4	+ 144,61 + 146,67	- 3,37	.....	67. 35. 18,25	8. 10. 45,4	67. 35. 42,38	+ 24,13	G.
5.47. 25	70. 8,4 70. 14,8	+ 146,99 + 147,77	- 3,22	70. 14. 45,39	70. 8. 13,09 70. 8. 18,49	7. 46. 20,6	70. 8. 38,54	+ 25,45 + 20,05	G.
5.56. 23 5.56. 45	70. 8,7 70. 50,4	+ 160,14 + 167,01	- 3,26	70. 50. 26,36	70. 8. 27,23	7. 53. 17,1	70. 8. 49,44	+ 22,21	G.
6. 0. 50 6. 1. 23	70. 8,7 70. 50,4	+ 167,85 + 175,35	- 3,28	.....	70. 8. 26,68	7. 59. 43,4	70. 8. 54,86	+ 28,18	G.
6. 7. 9 6. 7. 31	70. 8,8 70. 50,4	+ 179,56 + 187,60	- 3,30	.....	70. 8. 34,47	8. 6. 1,3	70. 9. 2,54	+ 28,07	G.

N°. 58. The first concluded N.P.D. of the comet was derived from the comet observation alone by applying an index error  $-3'.37'',48$ , which is the mean of the index errors of  $\theta^1$  Arietis on the same day.

N°. 63 and 65. No correction for Runa of B.

N°. 64. This was considered the best observation in this day's series.

## REMARKS ON THE APPEARANCE OF THE COMET.

Feb. 25. In the Telescope of the five-feet Equatoreal the comet was hardly bright enough to allow of illuminating the field for seeing the wires. It was apparently round: no bright centre was discernible. (C)

Feb. 29. The comet would not bear more illumination of the field than on Feb. 25. It was quite round. (C)

Feb. 29. The comet bore illumination of the field of the five-feet Equatoreal as well as a star of the 8th magnitude. Its apparent diameter is about  $2'$ . The part following in R.A. was considerably brighter than the surrounding nebulosity, but no distinct nucleus was visible. (G)

March 2. The comet covered a star of the 9th magnitude and did not much diminish its brightness. A nucleus, resembling a star, was discernible by flashes. It was observed to change position relatively to the star above-mentioned. (G)

March 3. The apparent size of the comet was less, but it bore illumination better. The nucleus was seen more distinctly as a minute speck, round which the nebulous light was equally diffused. (G)

March 4. The nucleus seen as a bright speck in the comet's centre. (G)

March 6. The comet somewhat brighter, with the central nucleus better defined. (G)

March 7. A well defined nucleus distinctly visible, and as bright as a star of the 8th magnitude. (G)

March 19. The comet is less bright than when last seen, scarcely admitting of sufficient illumination to see the wires. No nucleus was visible. (G)

March 24. The atmosphere this evening was in an unfavorable state for viewing the comet. It appeared a faint patch of whiteness; no nucleus was distinguishable. The apparent size was nearly the same, but the brightness, allowing for the state of the atmosphere, was decidedly less. (G)

I made the following observations of the appearance of the comet with the Telescope of the Northumberland Equatoreal:—

Feb. 29.  $10^h$ . Too low to be well seen. It would almost bear as much illumination as is required for making the fine wires of the double-wire micrometer visible. Apparently quite round, is very bright at the centre, but has not a stellar nucleus.

March 5.  $8^h$ . I looked at Galle's second comet with the Northumberland Telescope. It had much increased in brightness. There was a great quantity of condensed light at the centre, looking very like a small star, but not so distinct as a star. I had a suspicion that the surrounding nebulosity was elongated in a direction parallel to which I placed the straight boundary of the field. The reading of the position Circle was  $25^{\circ}.20'$ . The reading for a star passing along the micrometer wire,  $359^{\circ}.16'$ . The angle of position of the comet's axis, reckoned in the usual manner, was therefore  $26^{\circ}.4'$ . This is very uncertain.

March 6.  $8^h$ . Comet looked at with the large Telescope. It was less bright on account of the moon-shine. Certainly there was a quantity of diffused light in the lower part of the field, whilst at the upper part the boundary of the luminosity seemed much more distinct. It was hard to tell the precise direction of the axis of the diffused light. The straight boundary of the field being placed parallel to the supposed direction, the reading of the position circle was  $230^{\circ}.28'$ . Another trial gave  $216^{\circ}.50'$ . The reading for the equatoreal direction being at the time  $178^{\circ}.26'$ , the resulting angles of position are,  $52^{\circ}.2'$  and  $38^{\circ}.24'$ . These, however, are very doubtful.

March 7.  $9\frac{1}{2}^h$ . Appearance of the comet nearly the same as on the previous night. The Moon shining and the comet being low, I could not guess at the direction of the axis.

March 19.  $8\frac{1}{2}^h$ . Almost as bright as when last seen. To all appearance round.

MISCELLANEOUS OBSERVATIONS

MADE WITH

THE NORTHUMBERLAND AND FIVE-FEET EQUATOREALS,

IN THE YEAR 1840.

## I. OBSERVATIONS OF THE MOON'S APPARENT DIAMETER.

Feb. 7. 7<sup>h</sup>. THE following observations of transits of the bright and *dark* Limbs of the Moon were made with the five-feet Equatoreal for the purpose of determining the Moon's Apparent Diameter. The dark Limb was hardly well enough seen for satisfactory observation, and could only be taken at the first wire on account of the diffused light which covered the field as soon as the bright limb departed. The wind was very loud, and, Graham being inaudible, the time was taken with Chronometer X applied to the ear. Observer C.

No. of Series.	Time of Transit of first Limb by Chronometer X.			Time of Transit of second Limb by Chronometer X.			Difference of Transits.	
	h.	m.	s.	h.	m.	s.	m.	s.
1 .....	3	58	1,3	4	0	14,2	2	12,9
2 .....	4	2	11,9	4	4	25,1	2	13,2
3 .....	4	19	49,8	4	22	2,5	2	12,7
4 .....	4	24	16,7	4	26	29,5	2	12,8
5 .....	4	29	33,0	4	31	45,7	2	12,7
6 .....	4	34	31,9	4	36	45,0	2	13,1
7 .....	4	40	22,2	4	42	35,3	2	13,1
8 .....	4	46	45,8	4	48	58,8	2	13,0

The time of transit of 2 L of N°. 4 was doubtful, a cloud coming over. The time for 2 L of N°. 5 was very doubtful. N°. 8 was reckoned good.

Feb. 8. 6<sup>h</sup> $\frac{1}{2}$ . Observations of the Moon's bright and dark Limbs were taken with the five-feet Equatoreal just as on Feb. 7. Chronometer X was used in the greater number of instances on account of the loudness of the wind. Observer C.

No. of Series.	Time of Transit of first Limb by Clock or Chronometer.			Time of Transit of second Limb by Clock or Chronometer.			Difference of Transits.	
	h.	m.	s.	h.	m.	s.	m.	s.
1 .....	3	16	41,4	3	18	57,5	2	16,1
2 .....	3	21	49,3	3	24	5,2	2	15,9
3 .....	3	28	50,6	3	31	6,5	2	15,9
4 .....	3	34	34,2	3	36	50,4	2	16,2
5 .....	3	38	32,7	3	40	48,7	2	16,0
6 .....	3	52	8,8	3	54	25,1	2	16,3
7 .....	4	3	28,7	4	5	44,4	2	15,7
8 .....	4	14	8,1	4	16	24,2	2	16,1
9 .....	4	19	53,8	4	22	10,2	2	16,4

N°. 1, 2, and 6 were taken with the clock Graham, the rest with Chronometer X. N°. 8 was marked 'good'.

March 6. 7<sup>h</sup> $\frac{1}{2}$ . Transits of the Moon's bright and dark Limbs were taken with the Northumberland Equatoreal. The second, or dark limb was sufficiently visible. A power of 215 was used. The transits were taken at the teeth of the comb. Observer C.

No. of Series.	Time of Transit of first Limb by Chronometer X.			Time of Transit of second Limb by Chronometer X.			Difference of Transits.	
	h.	m.	s.	h.	m.	s.	m.	s.
1 .....	6	26	57,6	6	29	15,0	2	17,4
2 .....	6	33	16,4	6	35	33,7	2	17,3
3 .....	6	37	4,8	6	39	22,0	2	17,2
4 .....	6	43	9,7	6	45	27,2	2	17,5
5 .....	6	47	49,9	6	50	7,2	2	17,3

The counting was 10<sup>s</sup> short in the observation of 2 L of N°. 4, which has been altered accordingly. N°. 5 was reckoned the best of the series.



March 7. 7<sup>h</sup>. Transits of the Moon's bright and dark Limbs were taken with the Northumberland Equatoreal as on March 6, excepting that the observations were made at the two micrometer wires separated by a convenient interval. The observations were by no means satisfactory. Observer C.

No. of Series.	Time of Transit of first Limb by Chronometer X.			Time of Transit of second Limb by Chronometer X.			Difference of Transits.	
	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>m.</i>	<i>s.</i>
1	6	2	40,7	6	5	1,8	2	21,1
2	6	2	52,8	6	5	14,3	2	21,5
3	6	7	33,3	6	9	54,6	2	21,3
4	6	7	45,5	6	10	6,7	2	21,2
5	6	14	2,4	6	16	23,6	2	21,2
6	6	14	14,5	6	16	35,9	2	21,4

In the observation of 2 L. of N<sup>o</sup>. 4 the counting was found half a second, that is, one interval between the beats, in advance, and in consequence 0<sup>s</sup>.5 has been subtracted.

#### CALCULATION OF THE MOON'S APPARENT DIAMETER FROM THE PRECEDING OBSERVATIONS.

Day of Observa- tion.	No. of Observations	Mean of Times of Observation by Chronometer X.	Sidereal Time.	Corresponding Greenwich Mean Solar Time.	R.A. of Moon at that time.	Mean inter- val between the Transits of Limbs.	Seconds of Tabular Interval.	Excess of the Latter.	Tabular Diameter.	Error of Tabular Diameter.
1840.		<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>m. s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>"</i>
Feb. 7	8	4. 25. 33,1	4. 23. 11,5	7. 14. 52,2	0. 34. 58,5	2. 12,94	13,22	+ 0,28	31. 58,04	+ 4,04
8	9	3. 47. 47,5	3. 45. 23,2	6. 33. 14,2	1. 24. 10,9	2. 16,07	16,60	+ 0,53	32. 3,00	+ 7,32
Mar. 6	5	6. 38. 48,4	6. 35. 30,3	7. 36. 44,0	1. 12. 10,9	2. 17,34	17,28	- 0,06	32. 22,00	- 0,84
7	6	6. 9. 22,2	6. 6. 2,2	7. 3. 24,7	2. 4. 58,7	2. 21,28	21,50	+ 0,22	32. 25,52	+ 3,02

In the above Table the calculations for each day are made for the Greenwich mean solar time corresponding to the mean of all the times of observation of the two limbs, which mean is derived from the mean of the times of observation by Chronometer X, by the comparisons given in page 210. In the instances in which the clock Graham was used, the noted times are reduced to times by X by comparisons in the same page. The Moon's Tabular R.A. (*x*) and Tabular Diameter (*d*) were interpolated with second differences from the Nautical Almanac, and then the Tabular sidereal interval (*y*) of transit of Diameter was inferred from the equation  $y = a + bx + cx^2$ , the constants *a*, *b*, *c*, being known from the Moon's R.A. and sidereal interval of transit of semi-diameter given in the Nautical Almanac for the three culminations, upper or lower, of the Moon, which were nearest the mean time of observation. No correction is required for parallax. (See Cambridge Observations, Vol. xi. p. lxiv.) The error of Tabular Diameter in the last column of the above Table is a fourth proportional to the Tabular interval of transit of Diameter, the excess of this above the observed interval, and the Tabular Diameter.

#### II MICROMETER MEASURES OF JUPITER'S POLAR AND EQUATOREAL DIAMETERS.

Jan. 15. 19<sup>h</sup>. The following measures of Jupiter's Polar Diameter were taken with the double-wire micrometer of the Northumberland Telescope. The two wires were applied simultaneously to opposite limbs, and alternately to each limb, one being made to pass the other after each measure. Observer C.

No. of Series.	Reading of Micrometer A.	Reading of Micrometer B.	Diameter in Microm. Revolutions	Diameter in etc.
1	9,741	12,235	1,915	32,50
2	7,542	10,644	1,875	31,80
3	10,006	11,970	1,915	32,50

The morning was so misty that the series could not be proceeded with

Jan. 26, 19<sup>h</sup>. Measures of Jupiter's Polar and Equatoreal Diameters were taken with the double-wire Micrometer of the Northumberland Telescope in the same manner as on Jan. 17. Observer C.

## POLAR DIAMETER.

No. of Series.	Reading of Micrometer A.	Reading of Micrometer B.	Diameter in Microm. Revolutions.	Diameter in arc.
1	11,167	10,922	2,028	34,41
2	8,850	9,185	2,026	34,38
3	11,089	10,973	2,001	33,96
4	8,685	9,336	2,040	34,62

## EQUATOREAL DIAMETER.

5	11,085	11,043	2,067	35,08
6	9,675	8,279	2,107	35,76
7	11,353	10,823	2,115	35,89
8	10,084	7,898	2,079	35,28

N<sup>os</sup>. 1 and 2 were taken with a power of 215, the rest with a power of 280.

In all the observations above, the micrometer readings increase, as usual, towards the micrometer head. The coincidence reading of B, when A reads 10<sup>r</sup>,000, is 10<sup>r</sup>,061. This was inferred from the observations themselves, by taking the mean of *all* the micrometer readings, (excluding those of N<sup>o</sup>. 3 on Jan. 17), and subtracting 10<sup>r</sup>,000. The Diameter in micrometer revolutions is the difference between the sum of the two micrometer readings and 20<sup>r</sup>,061. This difference is converted into arc by multiplying by 16<sup>r</sup>,970, the value of one micrometer revolution.

On the morning of the same day (Jan. 26) I took measures of Jupiter's Equatoreal Diameter with the double-image divided-glass eye-piece N<sup>o</sup>. 9, power, 380. The moveable image was brought into alternate contact with the limbs of the fixed image at the extremities of the equatoreal diameter, so that the difference of consecutive readings measures twice the diameter. The observations were not satisfactory; a limb of one of the images was extremely faint, and there was too much day-light.

No. of Contact.	Micrometer Reading.	Difference of Consecutive Readings.	Diameter in arc.
1	7,096	4,083	34,42
2	3,013	4,099	34,55
3	7,112	4,045	34,10
4	3,067		

One micrometer revolution = 16<sup>r</sup>,858. (For this value see Introduction.)

## COMPARISON WITH THE DIAMETERS IN THE NAUTICAL ALMANAC.

Mean Time of Observation.	Diameter.	No. of Observations.	Mean of Diameters by Observation.	Diameter in Nautical Almanac.	Excess of Latter.
Jan. 17. 19	Polar	3	32,33	32,67	+ 0,34
26. 19	Polar	4	34,40	33,51	- 0,89
— 19	Equatoreal	4	35,78	36,15	+ 0,37
— 20	Equatoreal	3	34,64	64,15	(+ 1,51)

The Polar Diameters by observation have been increased by 0<sup>r</sup>,06 for refraction, and the Equatoreal Diameters by 0<sup>r</sup>,28 for defect of illumination.

## III. APPARENT POSITION OF JUPITER'S EQUATOREAL DIAMETER.

Jan. 17. 19<sup>h</sup>. I placed the micrometer wires of the Northumberland Telescope parallel to Jupiter's belts, for the purpose of determining the direction of his equatoreal diameter. The morning being misty the belts were seen very indistinctly.

Reading of position circle .....	196 . 26
Reading for the direction of a parallel of declination .....	179 . 0

Angle made by Jupiter's Equatoreal Diameter with a parallel of declination . 17 . 26

Jan. 26. 19<sup>h</sup>. I observed as on Jan. 17 for the direction of Jupiter's Equatoreal Diameter.

Readings of position circle (3 observations) .....	194 . 38
	195 . 22
	196 . 2

Mean reading .....

Reading for the direction of a parallel of declination .....

Angle made by Jupiter's Equatoreal Diameter with a parallel of declination . 16 . 21

## IV. RIGHT ASCENSION AND NORTH POLAR DISTANCE OF A NEBULA.

Feb. 24. 8<sup>h</sup>. In searching for Galle's second comet with the Northumberland Telescope I met with a Nebula which I mistook for the Comet, and compared in N.P.D. with an adjacent Star. The Nebula and Star were bisected by the horizontal wire of the Finder.

Sector reading for the Star.	Sector reading for the Nebula.	Difference of readings in arc.	Mean N.P.D. of Star, Jan. 1, 1840.	Mean N.P.D. of Nebula, Jan. 1, 1840.
d.    r.	d.    r.		d.    r.	d.    r.
26 . 0,618	22 . 6,328	12 . 39	60 . 26 . 4	60 . 12 . 47
26 . 0,926	21 . 19,158	13 . 56		

The sector readings increase with the N.P.D.  $1^d = 204'',258$ ;  $1^r = 10'',178$ .

At the same time Mr Glaisher compared the Nebula in R.A. with the same star, with the five-foot Equatoreal.

	Entering	Departing.	Excess of R.A. of Nebula.	Mean R.A. of Star Jan. 1, 1840.	Mean R.A. of Nebula Jan. 1, 1840.
	h.    m.    s.	h.    m.    s.	s.	h.    m.    s.	h.    m.    s.
Star .....	6 . 42 . 0	6 . 44 . 15			
Nebula ...	6 . 42 . 20	6 . 44 . 36	+ 20,5	1 . 24 . 38,9	1 . 24 . 59,4

The mean N.P.D. of the Star was determined by Circle observations in 1840, and its mean R.A. by Transit observations in 1841.

The Nebula is Herschel V. 17 = Bode 3 Trianguli.



OCCULTATIONS

OF

FIXED STARS BY THE MOON,

WITH

THE EQUATIONS GIVEN BY THE CALCULATION  
OF THE OCCULTATIONS.

---

1840.

Day of Observation 1840.	Ref. N <sup>o</sup> .	Phenomenon.	Moon's Limb.	Clock or Chronom.	Time noted.	Time by Hardy.	Sidereal Time.	Greenwich Mean Solar Time.	Observer.
Jan. 13	1	Disappearance of $\mu$ Arietis	Dark	G.	<i>h. m. s.</i> 2.48.24,9	<i>h. m. s.</i> 2.41.51,56	<i>h. m. s.</i> 2.42.55,28	<i>h. m. s.</i> 7.13.10,24	G.
16	2	Disappearance of C Tauri	Dark	G.	2.55.47,0	2.49.59,66	2.50. 8,70	7. 8.34,74	G.
	3	Reappearance of C Tauri	Bright	G.	3.32.43,8	3.26.56,50	3.27. 5,58	7.45.25,57	G.
Feb. 8	4	Disappear. of $\ast$ (anonymous)	Dark	X.	4.10.53,0	4. 7.41,50	4. 8.28,64	6.56.15,89	C.
14	5	Disappearance of $\kappa$ Geminorum	Dark	G.	7.24.19,4	7.23.36,59	7.24.34,20	9.48.13,86	G.
Apr. 11	6	Reappearance of $\nu$ Leonis	Bright	X. W.	11.48. 5,0 10.25.18,4	11.45.57,80 11.45.51,72	11.46.34,06	10.25.24,02	C. G.
Oct. 12	7	Disappearance of $\mu$ Arietis	Bright	G.	0.18.12,3	0.16.29,40	0.16.56,63	10.50.16,20	G.
13	8	Disappearance of $\epsilon$ Pleiadum	Bright	G.	0.58.35,6	0.56.48,58	0.57.17,88	11.26.34,92	G.
...	9	Disappearance of $\epsilon$ Pleiadum	Bright	G.	1.16.14,7	1.14.27,59	1.14.56,91	11.44.11,07	G.
...	10	Reappearance of $g$ Pleiadum	Dark	G.	1.41.57,0	1.40. 9,82	1.40.39,18	12. 9.49,12	G.
...	11	Reappearance of $\epsilon$ Pleiadum	Dark	G.	2. 6. 2,3	2. 4.15,05	2. 4.44,44	12.33.50,43	G.
...	12	Reappearance of $\epsilon$ Pleiadum	Dark	G.	2.12. 2,8	2.10.15,54	2.10.44,94	12.39.49,95	G.

All the observations were made with the Telescope of the Five-feet Equatoreal, with the exception of C's observation on April 11, which was made with the Northumberland Telescope.

N<sup>o</sup>. 1. Very satisfactory: accurate to one-tenth of a second.

N<sup>o</sup>. 2. Very exact.

N<sup>o</sup>. 3. Good, for this kind of observation.

N<sup>o</sup>. 4. Very accurate. The star is not in the Nautical Almanac. The angle from the vertex was about  $45^\circ$ . The star's place is determined by Transit observations in 1841 and Circle observations in 1840. Mean R.A. Jan. 1, 1840,  $1^h.24^m.16^s.34$ . Mean N.P.D. Jan. 1, 1840,  $77^\circ.39'.48''.64$ .

N<sup>o</sup>. 5. Pretty good. The disappearance occurred  $2^m$  before it was expected, and the observer had only just begun counting.

N<sup>o</sup>. 6. C's observation very uncertain. The star was judged to be  $5'$  or  $6'$  from the limb when first seen, and the time noted is a mere guess, allowance being made for the distance. G's observation was satisfactory.

N<sup>o</sup>. 7. Not quite satisfactory: star too faint.

N<sup>o</sup>. 8. Good. The star was so steady that it could almost be seen bisected by the limb.  $g$  Pleiadum was looked for  $3^m$  before the time of disappearance in the Nautical Almanac, but it was no where to be seen.

N<sup>o</sup>. 9. As satisfactory as N<sup>o</sup>. 8.

N<sup>o</sup>. 10. Not certain to the second. The observer's eye was tired, the reappearance occurring later than was expected.

N<sup>o</sup>. 11. Very good: little doubt of the fractional part of the second.

N<sup>o</sup>. 12. Quite satisfactory.

Disappearance of  $\mu$  Arietis, Jan. 13,  $7^h.13^m.10^s.24 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$40^{\circ}.43'.49''.20 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$38.5.7.05 + 0.5930 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$70.7.1.26 - 0.2089 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$59.29.78 \times (1 + 0.001 \times m)$
Moon's Geocentric Semidiameter .....	$16.12.73 \times (1 + 0.001 \times n)$
Star's Right Ascension in arc.....	$38.20.19.80 + e''$
Star's N.P.D. ....	$74.40.11.80 + f.$
Moon's apparent Right Ascension in arc	$38.5.18.27 + 0.4286t + 0.5998\tau + 1.0114x + 0.0002y - 0.1100m$
Moon's apparent N.P.D. ....	$70.39.5.39 - 0.2096t - 0.2121\tau - 0.0002x + 1.0147y + 1.9525m$
Moon's apparent Semidiameter.....	$16.27.11 + 0.0000t + 0.9871n.$

Apparent Distance of Star from Moon's center:

$$16^{\circ}.6''.17 + 0''.9415 \times \{ + e - 0.4268t - 0.5998\tau - 1.0114x - 0.0002y + 0.1100m \} \\ - 0''.0679 \times \{ - 0.2096t - 0.2121\tau - 0.0002x + 1.0147y + 1.9525m \} + 0''.0695f.$$

Final Equation:

$$+ 20''.94 = + 0.9415e + 0.0695f - 0.9522x - 0.0691y - 0.3893t - 0.5503\tau - 0.0290m - 0.9871n.$$

Disappearance of C Tauri, Jan. 16,  $7^h.8^m.34^s.74 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$42^{\circ}.32'.10''.50 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$85.9.30.30 + 0.6923 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$61.43.37.59 - 0.0033 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1.0.3.11 \times (1 + 0.001 \times m)$
Moon's Geocentric Semidiameter .....	$16.21.82 \times (1 + 0.001 \times n)$
Star's Right Ascension in arc .....	$85.49.33.40 + e''$
Star's N.P.D. ....	$62.25.46.80 + f.$
Moon's apparent Right Ascension in arc	$85.38.6.56 + 0.5639t + 0.6985\tau + 1.0090x - 0.0045y + 1.7317m$
Moon's apparent N.P.D. ....	$62.12.49.14 - 0.0528t - 0.0009\tau + 0.0035x + 1.0135y + 1.7784n.$
Moon's apparent Semidiameter.....	$16.35.15 + 0.0005t + 0.9952n.$

Apparent Distance of Star from Moon's center:

$$16^{\circ}.28''.57 + 0''.5465 \times \{ + e - 0.5639t - 0.6985\tau - 1.0090x + 0.0045y - 1.7317m \} \\ - 0''.7864 \times \{ - 0.0528t - 0.0009\tau + 0.0035x + 1.0135y + 1.7784m \} + 0''.7874f.$$

Final Equation:

$$+ 6''.76 = + 0.5465e + 0.7874f - 0.3542x - 0.7946y - 0.2672t - 0.3810\tau - 2.3449m - 0.9552n.$$



Reappearance of C Tauri, Jan. 16,  $7^h.45^m.25^s.57 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$51.46.23,70 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$85.35.0,90 + 0,6923 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$61.43.32,80 - 0,0011 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1.0.2,95 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16.21,77 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$85.49.35,40 + e''$
Star's N.P.D. ....	$62.25.46,80 + f.$
Moon's apparent Right Ascension in arc	$85.58.32,82 + 0,5467t + 0,6994\tau + 1,0102x - 0,0037y + 1,4263m$
Moon's apparent N.P.D. ....	$62.11.3,81 - 0,0419t + 0,0009\tau + 0,0029x + 1,0144y + 1,6770m$
Moon's apparent Semidiameter.....	$16.36,02 + 0,0004t + 0,9960n.$

Apparent Distance of Star from Moon's center:

$$16'.43'',05 + 0'',4201 \times \{ -e + 0,5467t + 0,6994\tau + 1,0102x - 0,0037y + 1,4263m \} \\ - 0'',8801 \times \{ -0,0419t + 0,0009\tau + 0,0029x + 1,0144y + 1,6770m \} + 0'',8807f.$$

Final Equation:

$$-7'',03 = -0,4201e + 0,8807f + 0,4218x - 0,8943y + 0,2661t + 0,2930\tau - 0,8767m - 0,9960n.$$

Disappearance of an Anonymous \*, Feb. 8,  $6^h.56^m.15^s.89 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$62.7.9,60 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$21.15.11,25 + 0,5413 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$76.50.46,05 - 0,2498 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$58.48,59 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter.....	$16.1,56 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc.....	$21.4.6,90 + e''$
Star's N.P.D. ....	$77.39.43,01 + f.$
Moon's apparent Right Ascension in arc	$20.50.43,63 + 0,4227t + 0,5453\tau + 1,0082x + 0,0017y - 1,4797m$
Moon's apparent N.P.D. ....	$77.30.2,49 - 0,2305t - 0,2533\tau - 0,0015x + 1,0108y + 2,3830m$
Moon's apparent Semidiameter.....	$16.11,97 - 0,0005t + 0,9720n.$

Apparent Distance of Star from Moon's center:

$$16'.15'',91 + 0'',7852 \times \{ +e - 0,1016t - 0,2242\tau - 1,0082x - 0,0017y + 1,4797m \} \\ - 0'',5945 \times \{ -0,2305t - 0,2533\tau - 0,0015x + 1,0108y + 2,3830m \} + 0'',5951f.$$

Final Equation:

$$-3'',91 = +0,7852e + 0,5951f - 0,7907x - 0,6023y - 0,1944t - 0,2776\tau - 0,2348m - 0,9720n.$$

Disappearance of  $\alpha$  Geminorum, Feb. 14,  $9^h.48^m.13^s.86 + t' + \tau'$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$111. 8. 33,00 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$113. 36. 40,95 + 0,6322 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$64. 30. 54,04 + 0,1307 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$58. 52,46 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16. 2,58 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$113. 42. 17,10 + e''$
Star's N.P.D. ....	$65. 13. 21,80 + f.$
Moon's apparent Right Ascension in arc	$113. 38. 25,66 + 0,4631 t + 0,6396 \tau + 1,0118 x - 0,0002 y + 0,1059 m$
Moon's apparent N.P.D. ....	$64. 57. 34,49 + 0,1298 t + 0,1328 \tau + 0,0002 x + 1,0154 y + 1,6252 m$
Moon's apparent Semidiameter .....	$16. 17,49 + 0,0000 t + 0,9775 n.$

Apparent Distance of Star from Moon's center :

$$16'. 10'',29 + 0'',1962 \times \{ + e - 0,4631 t - 0,6396 \tau - 1,0118 x + 0,0002 y - 0,1059 m \} \\ - 0'',9762 \times \{ + 0,1298 t + 0,1328 \tau + 0,0002 x + 1,0154 y + 1,6252 m \} + 0'',9764 f.$$

Final Equation :

$$+ 7'',20 = + 0,1962 e + 0,9764 f - 0,1987 x - 0,9912 y - 0,2176 t - 0,2551 \tau - 1,6073 m - 0,9775 n.$$

Reappearance of  $\nu$  Leonis, April 11,  $10^h.25^m.24^s.02 + t' + \tau'$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$176. 38. 30,90 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$147. 55. 12,30 + 0,5110 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$76. 1. 49,19 + 0,2290 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$56. 56,89 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$15. 31,10 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$147. 24. 42,15 + e''$
Star's N.P.D. ....	$76. 47. 43,50 + f.$
Moon's apparent Right Ascension in arc	$147. 57. 43,81 + 0,3775 t + 0,5160 \tau + 1,0092 x + 0,0013 y - 1,0582 m$
Moon's apparent N.P.D. ....	$76. 38. 19,74 + 0,2483 t + 0,2311 \tau - 0,0012 x + 1,0118 y + 2,2171 m$
Moon's apparent Semidiameter .....	$15. 42,15 - 0,0003 t + 0,9422 n.$

Apparent Distance of Star from Moon's center :

$$15'. 48'',06 + 0'',7811 \times \{ - e + 0,3775 t + 0,5160 \tau + 1,0092 x + 0,0013 y - 1,0582 m \} \\ - 0'',5965 \times \{ + 0,2483 t + 0,2311 \tau - 0,0012 x + 1,0118 y + 2,2171 m \} + 0'',5971 f$$

Final Equation :

$$- 5'',91 = - 0,7811 e + 0,5971 f + 0,7890 x - 0,6023 y + 0,1471 t + 0,2652 \tau - 2,1491 m - 0,9422 n.$$

Disappearance of  $\mu$  Arietis, Oct. 12,  $10^h . 50^m . 16^s . 20 + t^s + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$4 . 14 . 9'' . 45 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$37 . 46 . 46,50 + 0,6074 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$69 . 54 . 35,71 - 0,2035 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$59 . 50,43 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16 . 18,40 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$38 . 21 . 12,45 + e''$
Star's N.P.D. ....	$70 . 39 . 57,50 + f.$
Moon's apparent Right Ascension in arc	$38 . 8 . 35,90 + 0,4707t + 0,6137\tau + 1,0095x - 0,0023y + 1,3219m$
Moon's apparent N.P.D. ....	$70 . 28 . 45,07 - 0,2353t - 0,2050\tau + 0,0020x + 1,0131y + 1,9508m$
Moon's apparent Semidiameter .....	$16 . 31,29 + 0,0004t + 0,9913n.$

Apparent Distance of Star from Moon's center:

$$16' . 20'',41 + 0'',6863 \times \{ + e - 0,4707 t - 0,6137 \tau - 1,0095 x + 0,0023 y - 1,3219 m \} \\ - 0'',6854 \{ - 0,2353 t - 0,2050 \tau + 0,0020 x + 1,0131 y + 1,9508 m \} + 0,6862 f.$$

Final Equation:

$$+ 10'',88 = + 0,6863 e + 0,6862 f - 0,6942 x - 0,6928 y - 0,1622 t - 0,2807 \tau - 2,2443 m - 0,9913 n.$$

Disappearance of  $\epsilon$  Pleiadum, Oct. 13,  $11^h . 26^m . 34^s . 92 + t^s + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$14 . 19 . 28'',20 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$53 . 13 . 46,20 + 0,6479 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$65 . 35 . 28,58 - 0,1444 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1 . 0 . 0,73 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16 . 21,18 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$53 . 56 . 33,00 + e''$
Star's N.P.D. ....	$66 . 2 . 2,70 + f.$
Moon's apparent Right Ascension in arc	$53 . 39 . 24,94 + 0,5165t + 0,6544\tau + 1,0092x - 0,0034y + 1,5529m$
Moon's apparent N.P.D. ....	$66 . 7 . 4,10 - 0,1864t - 0,1445\tau + 0,0028x + 1,0133y + 1,9231m$
Moon's apparent Semidiameter .....	$16 . 34,31 + 0,0005t + 0,9943n.$

Apparent Distance of Star from Moon's center:

$$16' . 26'',88 + 0'',8702 \times \{ + e - 0,5165 t - 0,6544 \tau - 1,0092 x + 0,0034 y - 1,5529 m \} \\ + 0'',3064 \times \{ - 0,1864 t - 0,1445 \tau + 0,0028 x + 1,0133 y + 1,9231 m \} - 0'',3044 f.$$

Final Equation:

$$+ 7'',43 = + 0,8702 e - 0,3044 f - 0,8773 x + 0,3134 y - 0,5076 t - 0,6137 \tau - 0,7621 m - 0,9943 n.$$

Disappearance of  $\epsilon$  Pleiadum, Oct. 13,  $11^h.44^m.11^s.07 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in Arc .....	$18.44.13,65 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$53.25.10,50 + 0,6483 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$65.32.56,44 - 0,1436 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1.0.0,77 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16.21,19 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$54.5.51,75 + e''$
Star's N.P.D. ....	$66.7.54,90 + f.$
Moon's apparent Right Ascension in arc	$53.48.25,90 + 0,5090t + 0,6550\tau + 1,0097x - 0,0031y + 1,4091m$
Moon's apparent N.P.D. ....	$66.3.49,46 - 0,1820t - 0,1440\tau + 0,0025x + 1,0138y + 1,8803m$
Moon's apparent Semidiameter.....	$16.34,77 + 0,0004t + 0,9948n.$

Apparent Distance of Star from Moon's center:

$$16''.27'',16 + 0'',8855 \times \left\{ \begin{array}{l} + e - 0,5090t - 0,6550\tau - 1,0097x + 0,0031y - 1,4091m \\ - 0'',2476 \times \{-0,1820t - 0,1440\tau + 0,0025x + 1,0138y + 1,8803m\} + 0'',2496f. \end{array} \right.$$

Final Equation:

$$+ 7'',61 = + 0,8855e + 0,2496f - 0,8947x - 0,2483y - 0,4060t - 0,5444\tau - 1,7133m - 0,9948n.$$

Reappearance of  $g$  Pleiadum, Oct. 13,  $12^h.9^m.49^s.12 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$25.9.47,70 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$53.41.48,15 + 0,6489 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$65.29.16,19 - 0,1424 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1.0.0,82 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16.21,21 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$53.50.40,05 + e''$
Star's N.P.D. ....	$66.12.47,40 + f.$
Moon's apparent Right Ascension in arc	$54.1.20,90 + 0,4998t + 0,6561\tau + 1,0104x - 0,0026y + 1,1850m$
Moon's apparent N.P.D. ....	$65.59.14,40 - 0,1752t - 0,1431\tau + 0,0021x + 1,0144y + 1,8254m$
Moon's apparent Semidiameter.....	$16.35,36 + 0,0003t + 0,9954n.$

Apparent Distance of Star from Moon's center:

$$16''.42'',12 + 0'',5346 \times \left\{ \begin{array}{l} - e + 0,4998t + 0,6561\tau + 1,0104x - 0,0026y + 1,1850m \\ - 0'',8109 \times \{-0,1752t - 0,1431\tau + 0,0021x + 1,0144y + 1,8254m\} + 0'',8117f. \end{array} \right.$$

Final Equation:

$$- 6'',76 = - 0,5346e + 0,8117f + 0,5385x - 0,8240y + 0,4089t + 0,4668\tau - 0,8467m - 0,9954n.$$

Reappearance of  $\epsilon$  Pleiadum, Oct. 13,  $12^h.33^m.50^s.43 + t^s + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$31^{\circ}.11'.6''.60 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$53.57.23,85 + 0,6495 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$65.25.51,95 - 0,1413 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1 \quad 0. \quad 0,87 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16.21,22 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$53.56.33,00 + e''$
Star's N.P.D. ....	$66. \quad 2. \quad 2,70 + f.$
Moon's apparent Right Ascension in arc	$54^{\circ}.13'.15'',07 + 0,4925t + 0,6569\tau + 1,0110x - 0,0021y + 0,9617m$
Moon's apparent N.P.D. ....	$65.55. \quad 7,00 - 0,1684t - 0,1423\tau + 0,0017x + 1,0149y + 1,7820m$
Moon's apparent Semidiameter .....	$16.35,81 + 0,0000t + 0,9958n.$

Apparent Distance of Star from Moon's center:

$$16'.45'',25 + 0'',8316 \times \{-e + 0,4925t + 0,6569\tau + 1,0110x - 0,0021y + 0,9617m\} \\ - 0'',4126 \times \{-0,1684t - 0,1423\tau + 0,0017x + 1,0149y + 1,7820m\} + 0'',4144f.$$

Final Equation:

$$-9'',44 = -0,8316e + 0,4144f + 0,8401x - 0,4205y + 0,4791t + 0,6050\tau + 0,0645m - 0,9958n.$$

Reappearance of  $\epsilon$  Pleiadum, Oct. 13,  $12^h.39^m.49^s.95 + t^s + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$32^{\circ}.41'.14'',10 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$54. \quad 1.17,40 + 0,6496 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$65.25. \quad 1,19 - 0,1410 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1 \quad 0. \quad 0,89 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter .....	$16.21,22 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc .....	$54. \quad 5.51,75 + e''$
Star's N.P.D. ....	$66. \quad 7.54,90 + f.$
Moon's apparent Right Ascension in arc	$54^{\circ}.16'.11'',69 + 0,4909t + 0,6571\tau + 1,0111x - 0,0020y + 0,9042m$
Moon's apparent N.P.D. ....	$65.54. \quad 6,78 - 0,1665t - 0,1420\tau + 0,0016x + 1,0149y + 1,7725m$
Moon's apparent Semidiameter .....	$16.35,91 + 0,0003t + 0,9959n.$

Apparent Distance of Star from Moon's center:

$$16'.43'',30 + 0'',5158 \times \{-e + 0,4909t + 0,6571\tau + 1,0111x - 0,0020y + 0,9042m\} \\ - 0'',8252 \times \{-0,1665t - 0,1420\tau + 0,0016x + 1,0149y + 1,7725m\} + 0,8258f.$$

Final Equation:

$$-7'',39 = -0,5158e + 0,8258f + 0,5202x - 0,8385y + 0,3903t + 0,4561\tau - 0,9963m - 0,9959n.$$

TRANSITS AS OBSERVED,  
AND  
CALCULATION  
OF THE  
APPARENT RIGHT ASCENSIONS.

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1841.

## TRANSITS OBSERVED IN THE YEAR 1841.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 12	$\alpha$ Arietis .....	39,5	54,1	8,4	23,2	37,8	52,3	1. 58. 7,0		C.
Feb. 17	(a) $\alpha$ Aquilæ .....	17,9	31,7	45,0	58,9	12,3	26,0	19. 43. 39,3		G.
Feb. 18	Polaris .....	44. 4,7	52.17,3	0.51,0	9.12,8	17.39,5	1. 26. 1,7	- 4. 11,81	C.	
	(b) $\pi$ 135 .....	53,5	8,3	23,0	37,8	3. 36. 52,6	- 14,69	G.		
	$h$ Pleiadum .....	57,4	12,5	26,9	41,8	56,2	11,0	3. 40. 26,0	G.	
	(c) $\Sigma$ 520 .....	15,2	29,8	44,5	59,1	13,6	4. 9. 28,2	- 7,27	G.	
	$k$ Tauri .....	39,5	54,1	8,8	23,9	38,7	53,6	4. 49. 8,2	G.	
	14 Aurigæ .....	13,8	29,6	45,2	1,6	17,7	33,4	5. 5. 49,3	G.	
	$\beta$ Tauri .....	26,9	42,1	57,2	12,8	28,2	43,3	5. 16. 58,7	G.	
	(d) Regulus .....	25,0	38,7	52,2	6,3	20,1	10. 0. 33,9	- 6,89	G.	
Feb. 19	(d) $\delta$ Ursæ Minoris SP. ....	16. 1,6	19.47,2	27.22,0	31. 3,0	6. ....	+ 0,43	G.		
	Pollux .....	45,3	0,8	15,9	31,1	46,3	1,8	7. 36. 17,0	G.	
	(d) $\delta$ Ursæ Minoris .....	11.29,5	18.58,0	30.19,0	18. 34. 4,2	- 56,43	G.			
	$\alpha$ Aquilæ .....	13,8	27,1	40,7	54,7	8,2	21,7	19. 43. 35,1	G.	
Feb. 25	(d) 14 Aurigæ .....	58,4	14,8	30,1	46,3	2,4	18,1	5. 5. 34,1	B.	
	(d) $\beta$ Tauri .....	42,0	57,9	13,1	28,2	5. 16. 43,7	- 15,28	B.		
Mar. 4	Polaris .....	35.49,8	44.15,8	52.30,4	1. 0,7	9.26,3	17.49,6	1. 26. 15,3	B.	
	$h$ Pleiadum .....	9,0	23,2	37,6	52,7	7,3	22,0	3. 35. 36,7	B.	
	$f$ Pleiadum .....	25,0	39,7	54,1	9,0	23,7	38,3	3. 39. 53,0	B.	
	Aldebaran .....	14,6	28,1	42,8	4. 26. 56,7	- 21,04	B.			
	$k$ Tauri .....	8,0	22,7	37,0	52,2	7,0	21,9	4. 48. 36,7	B.	
	14 Aurigæ .....	14,0	50,1	46,2	2,1	5. 5. 17,9	- 15,93	B.		
	$\beta$ Tauri .....	55,3	11,0	25,4	41,2	56,7	12,1	5. 16. 27,2	B.	
	(d) $\alpha$ Orionis .....	33,3	46,9	0,3	14,1	28,1	5. 46. 41,1	- 6,77	B.	
	(e) Polaris .....	35.46,2	44.12,7	52.19,2	17.42,8	1. 26. 8,6	+ 1. 41,01	B.		
Mar. 6	$k$ Tauri .....	5,1	17,8	32,5	47,5	2,2	17,1	4. 48. 32,2	B.	
	14 Aurigæ .....	53,7	9,1	25,1	41,2	57,1	5. 5. 13,0	- 7,97	B.	
	$\beta$ Tauri .....	51,0	6,1	21,0	36,4	52,0	7,1	5. 16. 22,8	B.	
	$\theta^1$ Orionis .....	8,1	22,0	35,1	49,0	2,2	16,0	5. 27. 29,2	B.	
	$\zeta$ Orionis .....	25,3	39,1	52,2	6,1	19,2	33,0	5. 32. 46,2	B.	
	$\epsilon$ Tauri .....	56,5	12,0	26,8	42,0	57,1	12,8	5. 43. 27,7	B.	
	$\alpha$ Orionis .....	15,0	28,4	42,1	55,9	9,3	23,1	5. 46. 36,2	B.	
	(e) Polaris .....	44.10,4	17,0	32,1	47,4	3,1	5. 16. 18,1	- 8. 25,11	B.	
	$\beta$ Tauri .....	4,1	17,9	31,1	44,7	58,2	11,9	5. 27. 25,2	B.	
Mar. 8	$\theta^1$ Orionis .....	21,1	34,6	48,2	1,8	15,2	28,9	5. 32. 42,1	B.	
	$\alpha$ Orionis .....	24,3	37,5	51,4	5,1	18,7	5. 46. 32,1	6,77	B.	
	Polaris SP. ....	35.35,8	43.57,5	52.21,5	0.46,8	9.15,6	17.30,8	13. 25. 54,7	B.	
	Polaris .....	35.40,3	44. 8,2	52.18,7	0.50,8	9.12,2	17.38,3	1. 26. 2,8	B.	
	$h$ Pleiadum .....	26,5	41,6	56,2	11,1	5. 35. 25,8	14,66	B.		
Mar. 9	$\beta$ Tauri .....	44,4	59,8	15,1	30,3	45,4	1,1	5. 16. 16,2	B.	
	$\theta^1$ Orionis .....	2,1	15,7	29,0	42,5	56,1	9,9	5. 27. 23,1	B.	
	$\zeta$ Orionis .....	19,1	32,7	46,1	59,8	13,1	26,9	5. 32. 40,2	B.	
	(f) $\alpha$ Orionis .....	8,9	21,2	35,7	49,3	3,1	16,6	5. 46. 30,4	B.	
	* N.P.D. 33°. 1' .....	10,0	34,9	58,9	24,0	48,8	13,4	6. 24. 38,1	B.	
	* N.P.D. 35°. 59' .....	3,1	25,4	48,4	6. 31. 11,6	- 34,40	B.			
	$\pi$ 301 .....	10,9	33,0	55,0	18,1	40,1	2,6	6. 53. 25,0	B.	
	$\epsilon^1$ Geminorum .....	2,1	17,0	32,0	47,2	2,5	17,5	7. 1. 32,7	B.	
	Castor .....	55,6	11,8	27,1	43,3	59,2	15,1	7. 24. 31,0	B.	
	Procyon .....	34,1	47,2	1,1	14,5	28,1	41,5	7. 30. 55,1	B.	
	$\epsilon$ Geminorum .....	56,1	11,1	25,6	41,0	56,1	11,0	7. 34. 25,9	B.	
	$\omega^1$ Cancri .....	19,8	34,7	49,4	4,6	7. 51. 19,4	14,93	B.		
	$\chi$ Cancri .....	36,3	51,1	6,0	21,1	35,8	50,2	8. 11. 5,0	B.	

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.The Transit was levelled Feb. 23, 1<sup>h</sup>, March 4, 1<sup>h</sup>, and March 11, 2<sup>h</sup>. On Feb. 22 the screws of the East pier were moved to diminish the Level Error.

- (a) Wires IV and VII doubtful on account of clouds.  
 (b) Faint.  
 (c) Appeared to be of the 7th magnitude.

- (d) Cloudy.  
 (e) Cloudy, and much unsteadiness.  
 (f) Blazing.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
1. 57. 23.18		- 15.98	23.48	13.96	50.48	2.13	50.31			$\delta$ Arietis.
19. 42. 58.73	59.43		58.68	1.52	2.84	2.12	1.00	19. 43. 1.42	+ 0.02	$\alpha$ Aquilæ.
1. 0. 49.56	17.86		41.37	44.91	3.54		3.12	1. 1. 44.58	+ 42.31	Polaris.
3. 36. 8.35			8.70					3. 36. 12.14	- 1.13	Piazzi III. 135.
3. 39. 41.68			42.03					3. 39. 45.47	- 1.15	$h$ Pleiadum.
4. 8. 44.46			44.74					4. 8. 48.22	- 1.37	$\Sigma$ 520.
4. 48. 23.83			24.21					4. 48. 27.75	- 1.66	$k$ Tauri.
5. 5. 1.51			2.11					5. 5. 5.68	- 1.89	14 Aurigæ.
5. 16. 12.74	13.71		13.21	16.67	3.46			5. 16. 16.79	- 1.91	$\beta$ Tauri.
9. 59. 52.48			52.53	56.55	4.02			9. 59. 56.53	- 2.62	Regulus.
6. 23. 33.88	21.81		10.02	14.76	4.74	2.15	5.23	18. 23. 15.82	+ 21.16	$\delta$ Ursæ Min. SP.
7. 35. 31.17			31.67	37.42	5.75					Pollux.
18. 22. 46.24	59.35		9.47	14.90	5.43			18. 23. 16.35	+ 21.02	$\delta$ Ursæ Minoris.
19. 42. 54.47			54.42	1.56	7.14					$\alpha$ Aquilæ.
5. 4. 46.32			46.10			2.23	18.66	5. 5. 5.23	- 1.75	14 Aurigæ.
5. 15. 57.70			57.40	16.55	19.15					$\beta$ Tauri.
1. 1. 1.13		+ 4.61	1.05	37.82	36.77	2.32	34.18	1. 1. 35.33	+ 49.40	Polaris.
3. 34. 52.64			53.00					3. 35. 27.53	- 0.90	$h$ Pleiadum.
3. 39. 8.97			9.33					3. 39. 43.86	- 0.93	$f$ Pleiadum.
4. 26. 14.51			14.88	49.45	34.57			4. 26. 49.49	- 1.23	Aldebaran.
4. 47. 52.21			52.57					4. 48. 27.21	- 1.42	$k$ Tauri.
5. 4. 30.13			30.47					5. 5. 5.14	- 1.62	14 Aurigæ.
5. 15. 41.27			41.63	16.43	34.80			5. 16. 16.32	- 1.67	$\beta$ Tauri.
5. 46. 0.53			0.92	35.58	34.66			5. 46. 35.66	- 1.65	$\alpha$ Orionis.
1. 0. 54.91			54.83	36.80	41.97	2.27	38.91	1. 1. 33.83	+ 50.42	Polaris.
4. 47. 47.49			47.85					4. 48. 27.21	- 1.39	$k$ Tauri.
5. 4. 25.23			25.57					5. 5. 4.96	- 1.59	14 Aurigæ.
5. 13. 36.63			36.99	16.40	39.41					$\beta$ Tauri.
5. 26. 48.50			49.21					5. 27. 28.63	- 1.38	$\theta^1$ Orionis.
5. 32. 5.87			6.27					5. 32. 45.71	- 1.44	$\zeta$ Orionis.
5. 42. 12.13			42.49					5. 43. 21.94	- 1.82	$\epsilon$ Tauri.
5. 45. 55.71			56.10	35.55	39.45					$\alpha$ Orionis.
1. 0. 53.36	57.57		50.79	35.90	45.11	2.00	43.34	1. 1. 34.21	+ 51.32	Polaris.
5. 15. 32.27			32.54	16.36	43.82					$\beta$ Tauri.
5. 26. 44.73			45.10					5. 27. 28.89	- 1.35	$\theta^1$ Orionis.
5. 32. 1.70			2.05					5. 32. 45.85	- 1.40	$\zeta$ Orionis.
5. 45. 51.41			51.74	35.51	43.77					$\alpha$ Orionis.
13. 0. 46.10	41.94		49.21	35.71	46.50			1. 1. 33.63	+ 51.51	Polaris SP.
1. 0. 50.19	54.40		47.62	35.53	47.91	1.84	45.29	1. 1. 32.99	+ 51.69	Polaris.
3. 34. 41.58			41.86					3. 35. 27.43	- 0.82	$h$ Pleiadum.
5. 15. 30.32			30.59	16.34	45.75			5. 16. 16.78	- 1.58	$\beta$ Tauri.
5. 26. 42.63			43.00					5. 27. 28.71	- 1.33	$\theta^1$ Orionis.
5. 31. 59.70			0.05					5. 32. 45.77	- 1.39	$\zeta$ Orionis.
5. 45. 49.32			49.63	35.50	45.85			5. 46. 35.38	- 1.57	$\alpha$ Orionis.
6. 24. 24.01			24.18					6. 24. 9.96	- 2.06	$\epsilon$ S.P.D. 33 <sup>h</sup> 1 <sup>m</sup> .
6. 30. 2.72			2.91					6. 30. 48.70	- 2.88	$\epsilon$ S.P.D. 33 <sup>h</sup> 59 <sup>m</sup> .
6. 52. 17.82			18.02					6. 53. 3.84	- 3.07	Piazzi VI. 301.
7. 0. 47.29			47.56					7. 1. 33.39	- 2.28	47 Geminorum.
7. 23. 43.30			43.55	49.36	45.81			7. 24. 29.41	- 2.55	Castor.
7. 30. 14.51			14.85	0.58	45.73			7. 31. 0.72	- 2.08	Procyon.
7. 33. 40.97			41.24					7. 34. 27.11	- 2.45	$\epsilon$ Geminorum.
7. 50. 34.65			34.92					7. 51. 20.81	- 2.54	$\omega^1$ Cancri.
8. 10. 29.78			21.06					8. 11. 6.98	- 2.60	$\lambda$ Cancri.

Error of Collimation = + 1".13, (by the reversion on Dec. 21, 1840.)

Level Error = + 12".70, (continued from the preceding year.) From Feb. 25 = + 1".59. From March 4 = + 1".84.

From March 8 = + 0".60. For an account of these level errors see the Introduction.

The Meridian Error by Polaris Feb. 19 compared with  $\alpha$  Aquilæ Feb. 17 and  $\beta$  Tauri Feb. 18 = - 16".24; by  $\delta$  Ursæ Minoris SP and  $\delta$  Ursæ Minoris Feb. 18, allowing + 0".98 for loss of clock and change of M. = - 15".71. The mean of these is adopted from Feb. 12. Meridian Error from March 4 by Polaris, Polaris SP, and Polaris March 8 and 9. (See Introduction.)

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 9	$\nu^1$ Cancri.....	44,0	58,6	13,2	28,4	43,0	58,1	8. 17. 13,1		B.
Mar. 10	(a) $\beta$ Pleiadum.....	.....	.....	24,7	39,9	54,5	9,2	3. 35. 24,0	- 14,66	B.
	$\beta$ Tauri.....	42,4	58,0	13,0	28,3	43,8	59,1	5. 16. 14,2		B.
	$\theta^1$ Orionis.....	0,2	13,9	27,1	41,0	54,2	7,8	5. 27. 21,1		B.
	$\zeta$ Orionis.....	17,4	31,1	44,2	58,0	11,3	25,1	5. 32. 38,2		B.
	(b) $\alpha$ Orionis.....	7,1	20,6	34,5	48,1	1,4	14,9	5. 46. 28,2		B.
	(c) * N.P.D. 69°. 6'.....	.....	.....	42,1	57,0	11,2	25,8	6. 19. 40,2	- 14,38	B.
	* N.P.D. 33°. 1'.....	8,2	32,9	57,2	22,2	46,9	12,0	6. 24. 36,3		B.
	* N.P.D. 35°. 59'.....	52,4	15,1	37,3	1,1	24,0	47,1	6. 31. 9,6		B.
	Piazzi VI. 301.....	9,0	31,1	53,7	16,0	38,3	0,5	6. 53. 23,1		B.
	47 Geminorum.....	0,1	15,0	30,1	45,3	0,6	16,0	7. 1. 30,8		B.
	Castor.....	54,0	9,7	25,1	41,4	57,2	13,3	7. 24. 29,0		B.
	Procyon.....	32,1	45,3	59,1	12,9	26,2	40,0	7. 30. 53,2		B.
	$\epsilon$ Geminorum.....	54,0	9,0	24,0	39,1	54,2	9,0	7. 34. 24,0		B.
	$\omega^1$ Cancri.....	47,9	3,0	17,5	32,6	47,4	2,5	7. 51. 17,4		B.
	$\lambda$ Cancri.....	34,8	49,5	4,1	19,1	33,8	48,4	8. 11. 3,3		B.
	$\nu^1$ Cancri.....	42,0	57,0	11,3	26,1	41,0	56,0	8. 17. 10,9		B.
Mar. 11	$\beta$ Tauri.....	.....	56,1	11,3	26,9	42,2	57,2	5. 16. 12,4	- 7,64	B.
	$\alpha$ Orionis.....	5,1	18,8	32,2	46,0	59,2	13,0	5. 46. 26,4		B.
	(d) * N.P.D. 69°. 7'.....	28,0	42,2	55,9	10,9	25,2	39,1	6. 20. 54,0		B.
	* N.P.D. 35°. 59'.....	50,0	13,0	36,4	59,1	22,2	44,7	6. 31. 8,0		B.
	Piazzi VI. 301.....	7,2	29,3	51,1	14,0	36,4	59,0	6. 53. 21,0		B.
	47 Geminorum.....	58,1	13,3	28,1	43,6	58,7	13,9	7. 1. 28,9		B.
	Castor.....	52,0	7,9	23,4	39,8	55,5	11,6	7. 24. 27,2		B.
	Procyon.....	30,2	43,7	57,1	11,0	24,3	38,0	7. 30. 51,3		B.
	$\epsilon$ Geminorum.....	52,2	7,7	21,8	37,1	52,1	7,2	7. 34. 22,1		B.
Mar. 12	(e) Polaris.....	35.34,2	43.57,8	52.13,7	0.44,5	9. 6,4	17.30,7	1. 25. 55,8		B.
	$\epsilon$ Pleiadum.....	10,7	25,1	39,7	54,5	9,3	24,0	3. 35. 38,8		B.
	$\beta$ Tauri.....	38,5	54,0	8,9	24,6	39,7	55,1	5. 16. 10,3		B.
	$\alpha$ Orionis.....	3,2	16,7	30,0	43,7	57,3	11,2	5. 46. 24,3		B.
	* N.P.D. 33°. 1'.....	4,4	29,1	53,0	18,1	43,1	7,4	6. 24. 32,2		B.
	* N.P.D. 35°. 59'.....	47,2	11,5	34,1	57,0	19,9	42,2	6. 31. 5,7		B.
	Piazzi VI. 301.....	4,9	27,4	49,6	12,2	34,9	56,9	6. 53. 19,0		B.
	47 Geminorum.....	56,2	11,2	26,1	41,7	56,5	11,8	7. 1. 27,1		B.
	Castor.....	50,0	5,7	21,3	37,4	53,4	9,3	7. 24. 25,2		B.
	Procyon.....	28,1	41,6	55,0	8,7	22,2	36,1	7. 30. 49,3		B.
	$\epsilon$ Geminorum.....	50,2	5,2	20,0	35,1	50,1	5,3	7. 34. 20,0		B.
	$\omega^1$ Cancri.....	44,1	58,9	13,6	28,7	43,8	58,6	7. 51. 13,7		B.
	$\zeta$ Cancri.....	33,4	47,3	1,4	15,9	30,1	44,1	8. 2. 58,0		B.
	$\lambda$ Cancri.....	30,7	45,5	0,1	15,2	29,9	44,7	8. 10. 59,4		B.
	$\nu^1$ Cancri.....	38,0	52,8	7,5	22,4	37,3	52,1	8. 17. 7,0		B.
	(f) Polaris SP.....	35.21,4	43.43,6	52.12,3	0.35,7	9.10,4	17.20,2	13. 25. 46,7		B.
Mar. 13	(e) Polaris.....	35.33,4	43.57,6	52.12,7	0.44,8	9. 4,6	17.29,3	1. 25. 52,7		B.
	(g) $\epsilon$ Pleiadum.....	.....	23,3	.....	53,0	7,5	22,0	3. 35. 36,9	- 11,82	B.
	$\beta$ Tauri.....	36,5	52,0	7,0	22,3	38,1	53,2	5. 16. 8,5		B.
	$\alpha$ Orionis.....	1,1	14,7	28,2	42,0	55,3	9,2	5. 46. 22,3		B.
Mar. 15	(h) $\epsilon$ Pleiadum.....	41,4	56,2	10,8	26,0	40,2	55,2	3. 36. 10,1		B.
	$\beta$ Tauri.....	32,4	47,9	2,9	18,3	33,7	49,0	5. 16. 4,1		B.
	$\alpha$ Orionis.....	57,1	10,2	23,9	37,2	51,1	4,7	5. 46. 18,1		B.
	* N.P.D. 69°. 7'.....	19,4	34,0	48,1	2,8	17,1	31,2	6. 20. 45,3		B.
	(i) $\Sigma$ 941.....	36,0	54,0	11,3	29,7	47,5	6,1	6. 27. 23,9		B.
	Castor.....	43,6	59,8	15,1	31,1	47,0	3,1	7. 24. 19,0		B.
	(b) Procyon.....	22,0	35,3	48,8	3,1	16,2	30,0	7. 30. 43,2		B.
	$\epsilon$ Geminorum.....	10,7	25,1	40,0	55,0	9,8	25,1	7. 34. 39,2		B.
	$\zeta$ Cancri.....	27,1	41,1	55,0	9,6	24,0	37,6	8. 2. 52,1		B.
	$\lambda$ Cancri.....	25,0	39,3	54,0	8,9	23,8	38,7	8. 10. 53,2		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

- (a) Very cloudy.  
 (b) Blazing.  
 (c) This is a star of the 8th or 9th magnitude.  
 (d) A star on the same parallel as 15 Geminorum.  
 (e) Very unsteadily.

- (f) Flaring.  
 (g) Cloudy.  
 (h) Faint.  
 (i) Seen double.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
8. 16. 28,35		+ 4,61	28,63			1,84	45,29	8. 17. 14,56	- 2,65	$\nu^1$ Cancri.
3. 34. 39,80			40,08			1,79	47,08	3. 35. 27,43	- 0,80	$\delta$ Pleiadum.
5. 13. 28,40			28,67	16,33	47,66			5. 16. 16,14	- 1,57	$\beta$ Tauri.
5. 26. 40,75			41,12					5. 27. 28,60	- 1,32	$\theta$ Orionis.
5. 31. 57,90			58,25					5. 32. 45,74	- 1,37	$\zeta$ Orionis.
5. 45. 47,83			48,16	35,48	47,32			5. 46. 35,67	- 1,55	$\alpha$ Orionis.
6. 18. 56,88			57,17					6. 19. 44,72	- 1,92	* N.P.D. 69°. 6'
6. 23. 22,24			22,41					6. 24. 9,97	- 2,92	* N.P.D. 33°. 1'
6. 30. 0,94			1,13					6. 30. 48,69	- 2,85	* N.P.D. 35°. 59'
6. 32. 15,96			16,16					6. 53. 3,75	- 3,03	Piazzi VI. 301.
7. 0. 45,42			45,69					7. 1. 33,29	- 2,27	47 Geminorum.
7. 23. 41,38			41,63	29,35	47,72			7. 24. 29,26	- 2,54	Castor.
7. 30. 12,68			13,02	0,57	47,55			7. 31. 0,66	- 2,07	Procyon.
7. 33. 39,05			39,32					7. 34. 26,97	- 2,43	c Geminorum.
7. 50. 32,61			32,88					7. 51. 20,54	- 2,53	$\omega^1$ Cancri.
8. 10. 19,00			19,28					8. 11. 6,97	- 2,59	$\lambda$ Cancri.
8. 16. 26,33			26,61					8. 17. 14,31	- 2,63	$\nu^1$ Cancri.
5. 15. 26,71		+ 5,03	27,00	16,31	49,31	1,96	48,83	5. 16. 16,26	- 1,55	$\beta$ Tauri.
5. 45. 45,81			46,16	35,47	49,31			5. 46. 35,46	- 1,54	$\alpha$ Orionis.
6. 20. 10,75			11,06					6. 21. 0,40	- 1,89	* N.P.D. 69°. 7'
6. 29. 59,06			59,24					6. 30. 48,60	- 2,82	* N.P.D. 35°. 59'
6. 52. 14,00			14,19					6. 53. 3,58	- 3,01	Piazzi VI. 301.
7. 0. 43,51			43,79					7. 1. 33,19	- 2,25	47 Geminorum.
7. 23. 39,63			39,90	29,33	49,43			7. 24. 29,33	- 2,52	Castor.
7. 30. 10,80			11,16	0,55	49,39			7. 31. 0,60	- 2,05	Procyon.
7. 33. 37,17			37,46					7. 34. 26,91	- 2,45	c Geminorum.
1. 0. 43,30	47,51		40,11	34,74	54,63	2,07	50,92	1. 1. 31,12	+ 52,48	Polaris.
3. 34. 54,58			54,88					3. 35. 46,11	- 0,76	c Pleiadum.
5. 13. 24,44			24,73	16,29	51,56			5. 16. 16,11	- 1,53	$\beta$ Tauri.
5. 45. 45,77			44,12	35,45	51,33			5. 46. 35,54	- 1,52	$\alpha$ Orionis.
6. 23. 18,19			18,35					6. 24. 9,92	- 2,86	* N.P.D. 33°. 1'
6. 29. 56,80			56,98					6. 30. 48,56	- 2,80	* N.P.D. 35°. 59'
6. 52. 12,12			12,31					6. 53. 3,82	- 2,99	Piazzi VI. 301.
7. 0. 41,51			41,79					7. 1. 33,31	- 2,24	47 Geminorum.
7. 23. 37,47			37,74	29,32	51,58			7. 24. 29,30	- 2,51	Castor.
7. 30. 8,72			9,08	0,54	51,46			7. 31. 0,65	- 2,04	Procyon.
7. 33. 35,13			35,42					7. 34. 26,99	- 2,42	c Geminorum.
7. 50. 28,77			29,06					7. 51. 20,65	- 2,50	$\omega^1$ Cancri.
8. 2. 15,74			16,05					8. 3. 7,66	- 2,40	$\zeta$ Cancri.
8. 10. 15,07			15,36					8. 11. 6,99	- 2,57	$\lambda$ Cancri.
8. 16. 22,44			22,73					8. 17. 14,37	- 2,61	$\nu^1$ Cancri.
13. 0. 35,76	41,60		36,53	34,64	55,11			1. 1. 31,57	+ 52,58	Polaris SP.
1. 0. 42,16	46,37		38,97	34,53	55,56	2,02	52,90	1. 1. 31,95	+ 52,69	Polaris.
3. 34. 52,72			53,02					3. 35. 46,22	- 0,75	c Pleiadum
5. 13. 27,51			22,80	16,27	53,47					$\beta$ Tauri.
5. 45. 41,83			42,18	35,43	53,25					$\alpha$ Orionis
5. 35. 25,70			26,00			1,81	57,12	5. 36. 23,39	- 0,72	c Pleiadum
5. 13. 18,33			18,62	16,23	57,61			5. 16. 16,14	- 1,47	$\beta$ Tauri.
5. 45. 37,47			37,82	35,40	57,38			5. 46. 35,38	1,47	$\alpha$ Orionis.
6. 20. 2,55			2,86					6. 21. 0,46	- 1,82	* N.P.D. 69°. 7'
6. 26. 29,79			30,02					6. 27. 27,62	2,27	$\Sigma$ 931
7. 23. 31,24			31,51	29,28	57,77			7. 24. 29,19	- 2,47	Castor
7. 30. 2,66			3,02	0,49	57,47			7. 31. 0,71	1,99	Procyon
7. 33. 54,64			55,28					7. 34. 52,97	- 2,34	c Geminorum
8. 2. 9,50			9,81					8. 3. 7,54	- 2,35	$\zeta$ Cancri.
8. 10. 8,66			9,28					8. 11. 7,02	- 2,53	$\lambda$ Cancri.

Error of Collimation = + 1",13.

Level Error = + 0",60.

The Meridian Error from March 11 by Polaris, Polaris SP, and Polaris March 12 and 13

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 15	* N.P.D. 68°. 3' . . . . .	37,3	52,0	6,1	21,1	35,4	50,0	8. 48. 4,8		B.
	* N.P.D. 68°. 21' . . . . .	58,7	13,2	27,0	41,9	56,3	11,1	8. 58. 25,2		B.
	* N.P.D. 68°. 40' . . . . .	0,1	14,6	29,1	43,2	57,9	12,1	9. 3. 27,0		B.
	* N.P.D. 68°. 31' . . . . .	54,9	9,1	22,9	38,0	52,5	7,1	9. 9. 21,4		B.
	* N.P.D. 68°. 58' . . . . .	9,9	24,2	38,3	53,2	7,7	22,0	9. 14. 36,2		B.
	* N.P.D. 70°. 15' . . . . .	....	15,1	28,9	43,2	57,7	11,9	9. 17. 26,1	- 7,14	B.
	ν Leonis . . . . .	2,9	16,7	30,1	44,2	58,0	12,1	9. 49. 26,0		B.
	η Leonis . . . . .	2,0	15,8	29,8	44,1	58,2	12,2	9. 58. 26,0		B.
	45 Leonis . . . . .	38,2	51,9	5,5	19,2	32,9	46,8	10. 19. 0,4		B.
Mar. 16	c Pleiadum . . . . .	39,9	54,2	8,6	23,9	38,3	52,9	3. 36. 7,9		B.
	β Tauri . . . . .	30,7	46,0	1,0	16,4	32,0	47,1	5. 16. 2,6		B.
	(a) α Orionis . . . . .	54,9	8,9	22,2	35,7	49,1	3,2	5. 46. 16,8		B.
	Σ 941 . . . . .	33,7	52,0	9,4	28,0	46,0	4,0	6. 27. 21,8		B.
	(a) Castor . . . . .	41,9	57,8	13,3	29,5	45,4	1,5	7. 24. 17,2		B.
	(a) Procyon . . . . .	20,2	33,8	47,4	1,1	14,2	27,9	7. 30. 41,2		B.
	κ Geminorum . . . . .	8,8	23,4	38,0	52,9	7,8	22,9	7. 34. 37,5		B.
	ζ Cancri . . . . .	25,3	39,4	52,9	7,7	21,8	36,1	8. 2. 50,9		B.
	* N.P.D. 68°. 13' . . . . .	6,9	21,4	35,8	50,3	4,9	19,6	8. 49. 33,8		B.
	* N.P.D. 68°. 21' . . . . .	57,1	11,1	25,3	40,1	54,6	9,2	8. 58. 23,5		B.
	* N.P.D. 68°. 40' . . . . .	58,2	12,8	27,0	41,8	56,2	10,8	9. 3. 25,2		B.
	* N.P.D. 68°. 31' . . . . .	53,0	7,3	21,6	36,2	50,7	5,3	9. 9. 19,7		B.
	* N.P.D. 68°. 58' . . . . .	8,1	22,7	36,5	51,3	5,9	20,1	9. 14. 34,4		B.
	* N.P.D. 70°. 15' . . . . .	....	13,1	26,9	41,3	55,7	10,0	9. 17. 24,3	- 7,14	B.
	* N.P.D. 69°. 51' . . . . .	23,8	38,0	52,0	6,7	20,9	34,9	9. 20. 49,6		B.
	ν Leonis . . . . .	1,2	15,1	28,4	42,4	56,3	10,1	9. 49. 24,2		B.
	η Leonis . . . . .	0,2	14,0	27,7	42,1	56,1	10,6	9. 58. 24,6		B.
	45 Leonis . . . . .	36,4	50,2	3,6	17,7	31,4	45,1	10. 18. 58,5		B.
Mar. 17	β Tauri . . . . .	29,0	44,1	59,2	15,0	30,1	45,4	5. 16. 0,7		B.
	α Orionis . . . . .	53,4	6,9	20,2	34,1	47,5	1,1	5. 46. 14,8		B.
	Σ 941 . . . . .	32,1	49,8	7,9	26,1	44,1	2,2	6. 27. 20,0		B.
	Castor . . . . .	40,1	56,0	11,8	28,0	43,9	0,1	7. 24. 15,9		B.
	Procyon . . . . .	18,6	32,2	45,4	59,2	13,0	26,3	7. 30. 40,0		B.
	κ Geminorum . . . . .	7,0	22,1	36,4	51,3	6,2	21,0	7. 34. 36,0		B.
	* N.P.D. 68°. 13' . . . . .	5,3	20,1	34,6	49,1	3,5	18,0	8. 49. 32,2		B.
	(b) * N.P.D. 68°. 47' . . . . .	56,0	9,7	24,2	38,8	52,7	7,7	9. 10. 21,9		B.
	* N.P.D. 68°. 58' . . . . .	6,7	21,1	34,9	49,6	4,2	18,6	9. 14. 33,0		B.
	ω Leonis . . . . .	16,3	30,0	43,2	56,9	10,8	24,5	9. 19. 38,0		B.
	η Leonis . . . . .	58,9	12,6	26,2	40,7	54,9	9,0	9. 58. 23,2		B.
	45 Leonis . . . . .	34,9	48,9	2,2	15,9	29,7	43,5	10. 18. 57,0		B.
	49 Leonis . . . . .	2,1	15,2	28,7	42,4	56,1	9,7	10. 26. 23,4		B.
Mar. 18	(c) Castor . . . . .	38,5	54,3	10,1	26,4	42,2	58,1	7. 24. 14,1		B.
	Procyon . . . . .	16,9	30,3	43,9	57,3	10,8	24,2	7. 30. 37,8		B.
	* N.P.D. 68°. 13' . . . . .	3,5	17,9	32,2	47,0	1,8	15,9	8. 49. 30,5		B.
	* N.P.D. 68°. 26' . . . . .	36,8	51,2	5,1	19,8	34,7	49,0	9. 4. 3,8		B.
	* N.P.D. 68°. 47' . . . . .	54,1	7,9	22,2	37,1	51,4	5,8	9. 10. 20,3		B.
	ω Leonis . . . . .	14,6	28,1	41,7	55,3	9,2	22,9	9. 19. 36,5		B.
	(a) Regulus . . . . .	12,1	25,9	39,1	53,1	7,3	21,1	9. 59. 34,8		B.
	49 Leonis . . . . .	59,9	13,4	26,9	40,7	54,5	8,1	10. 26. 21,9		B.
	* N.P.D. 26°. 2' . . . . .	1,2	32,1	2,3	33,7	4,1	35,1	10. 53. 5,7		B.
Mar. 22	(d) * N.P.D. 68°. 26' . . . . .	28,9	43,4	57,6	12,4	26,8	41,1	9. 4. 55,7		B.
	A.S.C. 1132 . . . . .	2,2	17,1	31,6	47,2	1,8	17,2	9. 12. 31,8		B.
	ω Leonis . . . . .	7,2	20,6	34,0	48,2	1,6	15,2	9. 20. 29,1		B.
	(a) Regulus . . . . .	4,3	18,2	31,4	45,2	59,2	13,3	10. 0. 27,1		B.
	(c) β Leonis . . . . .	7,4	20,8	34,3	48,6	2,9	17,2	11. 41. 30,4		B.
	* N.P.D. 85°. 4' . . . . .	43,2	56,8	10,3	24,1	37,4	50,9	12. 4. 4,2		B.
Mar. 24	Polaris SP. . . . .	36,3,3	44,22,7	52,48,5	1,10,5	9,39,4	17,53,6	13. 26. 22,2		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.March 19, 0<sup>h</sup>, the clock was put forward 1<sup>m</sup>.The Transit was levelled March 22, 2<sup>h</sup>.

(a) Blazing.

(b) Very faint and doubtful.

(c) Loud wind.

(d) Very faint.

(e) Very hazy.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at (°).	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
8. 47. 20.95		+ 5.03	21.26			1.81	57.12	8. 48. 19.04	- 2.64	* N.P.D. 68° 3'.
8. 57. 41.91			42.22					8. 58. 40.02	- 2.67	* N.P.D. 68° 21'.
9. 2. 43.43			43.74					9. 3. 41.54	- 2.69	* N.P.D. 68° 40'.
9. 8. 37.99			38.30					9. 9. 36.11	- 2.71	* N.P.D. 68° 31'.
9. 13. 53.07			53.88					9. 14. 51.19	- 2.72	* N.P.D. 68° 58'.
9. 16. 43.34			43.65					9. 17. 41.47	- 2.70	* N.P.D. 70° 15'.
9. 48. 44.29			44.62					9. 49. 42.48	- 2.65	Leonis.
9. 57. 44.01			44.82					9. 58. 42.19	- 2.75	Leonis.
10. 18. 19.28			19.62					10. 19. 17.52	- 2.66	45 Leonis.
3. 35. 23.67			23.97			1.72	58.86	3. 36. 23.09	- 0.71	c Pleiadum.
5. 15. 16.55			16.84	16.21	59.87			5. 16. 16.08	- 1.45	β Tauri.
5. 45. 35.83			36.18	35.38	59.20			5. 46. 35.45	- 1.45	α Orionis.
6. 26. 27.85			28.08					6. 27. 27.40	- 2.24	Σ 941.
7. 23. 29.32			29.79	29.25	59.46			7. 24. 29.18	- 2.14	Castor.
7. 30. 0.83			1.19	0.48	59.29			7. 31. 0.59	- 1.98	Procyon.
7. 33. 53.04			53.33					7. 34. 52.73	- 2.33	α Geminorum.
8. 2. 7.73			8.04					8. 3. 7.47	- 2.35	ζ Cancri.
8. 48. 50.38			50.69					8. 49. 50.18	- 2.63	* N.P.D. 68° 13'.
8. 57. 40.12			40.43					8. 58. 39.93	- 2.66	* N.P.D. 68° 21'.
9. 2. 41.71			42.02					9. 3. 41.52	- 2.67	* N.P.D. 68° 40'.
9. 8. 36.26			36.57					9. 9. 36.08	- 2.69	* N.P.D. 68° 31'.
9. 13. 51.28			51.59					9. 14. 51.11	- 2.70	* N.P.D. 68° 58'.
9. 16. 41.41			41.72					9. 17. 41.25	- 2.68	* N.P.D. 70° 15'.
9. 20. 6.36			6.87					9. 21. 6.40	- 2.70	* N.P.D. 69° 51'.
9. 48. 42.53			42.86					9. 49. 42.42	- 2.65	Leonis.
9. 57. 42.18			42.39					9. 58. 42.06	- 2.75	Leonis.
10. 18. 17.56			17.90					10. 19. 17.50	- 2.66	45 Leonis.
5. 15. 14.79			15.03	16.19	61.16	1.69	60.58	5. 16. 15.98	- 1.43	β Tauri.
5. 45. 34.00			34.31	35.36	61.05			5. 46. 35.30	- 1.43	α Orionis.
6. 26. 26.03			26.19					6. 27. 27.22	- 2.22	Σ 941.
7. 23. 27.98			28.19	29.23	61.04			7. 24. 29.29	- 2.42	Castor.
7. 29. 59.25			59.57	0.46	60.89			7. 31. 0.68	- 1.96	Procyon.
7. 33. 51.43			51.67					7. 34. 52.78	- 2.32	α Geminorum.
8. 48. 48.98			49.24					8. 49. 50.41	- 2.62	* N.P.D. 68° 13'.
9. 9. 38.72			38.98					9. 10. 40.20	- 2.69	* N.P.D. 68° 47'.
9. 13. 49.73			49.90					9. 14. 51.22	- 2.70	* N.P.D. 68° 58'.
9. 18. 57.10			57.40					9. 19. 58.63	- 2.48	Leonis.
9. 57. 40.78			41.05					9. 58. 42.33	- 2.73	Leonis.
10. 18. 16.01			16.31					10. 19. 17.61	- 2.66	45 Leonis.
10. 25. 42.51			42.82					10. 26. 44.13	- 2.66	49 Leonis.
7. 23. 26.24			26.45	29.21	62.76	1.71	62.25	7. 24. 29.23	- 2.40	Castor.
7. 29. 57.32			57.64	0.45	62.81			7. 31. 0.42	- 1.95	Procyon.
8. 48. 46.97			47.23					8. 49. 50.11	- 2.61	* N.P.D. 68° 13'.
9. 3. 29.66			29.32					9. 4. 23.22	- 2.66	* N.P.D. 68° 26'.
9. 9. 36.97			37.23					9. 10. 40.13	- 2.68	* N.P.D. 68° 47'.
9. 18. 55.47			55.77					9. 19. 58.68	- 2.49	Leonis.
9. 58. 53.34			53.65	56.57	62.94			9. 59. 56.59	- 2.64	Regulus.
10. 25. 49.77			41.08					10. 26. 44.07	- 2.65	49 Leonis.
10. 51. 30.46			33.14					10. 52. 36.46	- 5.41	* N.P.D. 26° 2'
9. 4. 12.87		+ 4.66	12.51			1.94	9.74	9. 4. 22.98	- 2.62	* N.P.D. 68° 26'.
9. 11. 46.99			47.21					9. 11. 57.69	- 2.77	A.S.C. 1132
9. 19. 47.99			48.27					9. 19. 58.76	- 2.45	Leonis.
9. 59. 45.53			45.81	56.55	10.74					Regulus.
11. 40. 48.80			49.07	59.59	10.49					β Leonis.
12. 4. 23.84			24.14					12. 5. 34.86	- 2.68	* N.P.D. 85° 4'
13. 1. 11.46	8.86		16.21	31.91	15.70	1.88	15.83	1. 1. 31.06	+ 55.31	Polaris SP

Error of Collimation = + 1".13

Level Error = + 0".66 From March 17 = - 0".21.

The Meridian Error from March 22, by Polaris SP, Polaris, and Polaris SP March 24 and 25.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s. s.	m. s.	
Mar. 25	(a) Polaris .....	...	44.35,8	...	...	9.42,2	18. 5,7	1 .....	- 2. 48,75	B.
	Castor .....	24,7	40,9	56,4	12,6	28,4	44,3	7. 25. 0,1		B.
	Procyon .....	3,2	16,9	30,3	44,1	57,2	11,2	7. 31. 24,2		B.
	Pollux .....	34,3	50,1	5,1	20,5	35,6	51,1	7. 36. 6,0		B.
	(b) * N.P.D. 68°. 26' .....	22,9	37,9	51,8	6,4	20,8	34,8	9. 4. 50,1		B.
	A.S.C. 1132 .....	56,1	11,3	26,0	41,0	55,9	11,2	9. 12. 25,9		B.
	* N.P.D. 70°. 1' .....	7,3	21,7	35,3	49,9	4,7	18,9	9. 20. 33,0		B.
	Regulus .....	58,1	12,1	26,0	39,9	54,0	7,3	10. 0. 21,0		B.
	49 Leonis .....	...	...	13,3	27,4	41,1	54,3	10. 27. 8,1	- 13,62	B.
	* N.P.D. 81°. 4' .....	50,9	4,8	18,1	31,7	45,3	58,9	11. 6. 12,4		B.
	$\sigma$ Leonis .....	1,3	15,0	28,2	41,7	55,2	8,9	11. 13. 22,3		B.
	* N.P.D. 82°. 21' .....	49,8	3,7	17,1	30,7	44,2	58,0	11. 28. 11,3		B.
	Polaris SP .....	35.58,4	44.23,6	52.44,3	1. 4,6	9.40,3	17.52,8	13. 26. 17,5		B.
	A.S.C. 1132 .....	52,3	7,7	22,1	37,4	52,2	7,2	9. 12. 22,1		B.
	* N.P.D. 70°. 1' .....	3,7	18,0	31,7	46,5	0,9	15,1	9. 20. 29,5		B.
	Regulus .....	55,1	8,4	22,2	36,2	49,8	3,7	10. 0. 17,4		B.
Mar. 27	(b) * N.P.D. 26°. 2' .....	44,5	14,9	45,1	16,3	46,8	17,9	10. 53. 47,8		B.
	* N.P.D. 81°. 4' .....	46,9	0,1	14,1	27,9	42,1	55,0	11. 6. 9,1		B.
	$\sigma$ Leonis .....	57,7	11,0	24,3	38,2	51,7	5,2	11. 13. 18,9		B.
	* N.P.D. 82°. 21' .....	46,1	59,7	13,2	26,8	40,2	54,1	11. 28. 7,6		B.
	$\nu$ Virginis .....	42,8	56,2	9,5	23,1	36,9	50,4	11. 38. 4,1		B.
	$\beta$ Leonis .....	57,3	11,1	24,7	39,0	53,0	7,1	11. 41. 21,2		B.
	* N.P.D. 84°. 46' .....	23,2	36,8	50,0	3,7	17,2	30,8	11. 50. 44,2		B.
	(b) * N.P.D. 84°. 54' .....	18,9	32,2	45,6	59,2	12,6	26,1	11. 54. 39,6		B.
	* N.P.D. 84°. 36' .....	26,4	39,7	53,2	6,9	20,3	34,1	11. 59. 47,2		B.
	(a) Polaris .....	36. 3,3	44.27,4	...	...	9.35,7	...	1 .....	+ 11. 9,51	B.
	Apr. 2 (a) Polaris .....	35.55,3	...	52.32,7	1. 2,8	9.24,5	...	1 .....	+ 6. 18,34	B.
	(c) Polaris SP .....	35.41,5	44. 7,2	52.29,7	0.54,2	9.25,4	17.34,5	13. 25. 58,8		B.
Apr. 3	(a) Polaris .....	35.52,6	44.23,4	52.34,4	1. 5,5	9.28,8	...	1 .....	+ 8. 23,29	B.
	* N.P.D. 80°. 17' .....	45,1	58,9	12,7	26,3	40,2	54,0	10. 54. 7,3		B.
	* N.P.D. 81°. 4' .....	33,2	47,1	0,2	14,1	27,8	41,4	11. 5. 55,1		B.
	$\sigma$ Leonis .....	43,6	57,2	10,7	24,2	37,8	51,7	11. 13. 5,1		B.
	(d) * N.P.D. 82°. 21' .....	32,5	46,2	59,6	13,1	27,0	40,3	11. 27. 53,7		B.
	$\nu$ Virginis .....	28,7	42,1	55,4	9,4	23,0	36,3	11. 37. 50,2		B.
	$\beta$ Leonis .....	43,0	57,2	11,1	25,0	38,9	53,1	11. 41. 7,1		B.
	* N.P.D. 84°. 46' .....	9,4	23,1	36,2	49,9	3,3	16,7	11. 50. 30,2		B.
	* N.P.D. 84°. 54' .....	4,4	18,1	31,6	45,1	58,6	12,0	11. 54. 25,6		B.
	* N.P.D. 84°. 36' .....	12,7	26,2	39,2	53,1	6,5	19,9	11. 59. 33,4		B.
	* N.P.D. 85°. 4' .....	20,2	33,3	46,9	0,4	13,9	27,3	12. 3. 40,9		B.
	(c) Polaris SP .....	35.42,5	44. 2,7	52.24,6	0.47,6	9.17,5	17.31,8	13. 25. 56,4		B.
	Apr. 6 (a) Procyon .....	38,9	52,7	6,0	19,7	33,1	46,8	7. 31. 0,1		B.
	Pollux .....	10,5	26,1	40,9	56,3	11,8	27,1	7. 35. 42,1		B.
Apr. 6	(a) * N.P.D. 69°. 51' .....	43,0	57,4	11,3	25,3	39,8	...	9. 20. ....	+ 14,34	B.
	Regulus .....	34,3	48,2	1,7	15,7	29,4	43,1	9. 59. 57,1		B.
	(c) * N.P.D. 26°. 2' .....	23,5	54,2	24,3	56,0	26,5	57,4	10. 53. 27,8		B.
	* N.P.D. 82°. 51' .....	48,1	1,7	15,0	28,9	42,2	55,8	11. 29. 9,1		B.
	$\nu$ Virginis .....	22,3	36,0	48,9	3,3	16,9	30,2	11. 37. 44,0		B.
Apr. 10	* N.P.D. 82°. 51' .....	39,4	53,2	6,8	20,1	34,0	47,4	11. 29. 1,1		B.
	(a) $\beta$ Leonis .....	29,0	42,7	56,2	10,7	24,5	38,3	11. 40. 52,0		B.
Apr. 12	* N.P.D. 82°. 51' .....	35,3	48,9	2,2	15,7	29,4	43,1	11. 28. 56,5		B.
	$\beta$ Leonis .....	24,2	38,0	51,9	6,2	20,3	34,0	11. 40. 47,8		B.
	* N.P.D. 84°. 46' .....	50,7	3,9	17,0	31,1	44,3	58,1	11. 50. 11,3		B.
	* N.P.D. 84°. 54' .....	46,2	59,4	12,4	26,2	39,7	53,2	11. 54. 7,0		B.
	* N.P.D. 84°. 36' .....	53,3	7,1	20,4	33,8	47,3	1,1	11. 59. 14,6		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.  
The Transit was levelled March 30, 2<sup>h</sup>, April 7, 2<sup>h</sup>, and April 15, 2<sup>h</sup>.

(a) Cloudy.  
(b) Very faint.  
(c) Flaring.

(d) Hazy.  
(e) Faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. S.	S.	"	S.	S.	S.	S.	S.	A. M. S.	S.	
1. 1. 19.15	21.74	+ 4.66	14.89	31.89	17.00	1.88	15.71	1. 1. 30.68	+ 55.33	Polaris.
7. 24. 12.48			12.68	29.09	16.41			7. 24. 28.97	- 2.28	Castor.
7. 30. 43.87			44.17	0.34	16.17			7. 31. 0.47	- 1.84	Procyon.
7. 35. 20.58			20.60	36.96	16.36			7. 35. 36.90	- 2.25	Pollux.
9. 4. 6.39			6.63					9. 4. 23.05	- 2.58	* N.P.D. 68° 26'
9. 11. 41.05			41.27					9. 11. 57.70	- 2.74	A.S.C. 1132.
9. 19. 50.12			50.37					9. 20. 6.81	- 2.61	* N.P.D. 70° 1'
9. 59. 39.78			40.06	56.53	16.47			9. 59. 56.55	- 2.60	Regulus.
10. 26. 27.22			27.51					10. 26. 44.03	- 2.62	49 Leonis.
11. 5. 31.73			32.02					11. 5. 48.60	- 2.70	* N.P.D. 81° 4'
11. 12. 41.80			42.09					11. 12. 58.68	- 2.68	$\sigma$ Leonis.
11. 27. 30.68			30.97					11. 27. 47.58	- 2.71	* N.P.D. 82° 21'
13. 1. 8.79	6.19		13.54	31.88	18.34			1. 1. 30.27	+ 55.34	Polaris SP.
9. 11. 57.29			37.50			1.81	19.36	9. 11. 57.55	- 2.71	A.S.C. 1132.
9. 19. 46.49			46.73					9. 20. 6.79	- 2.59	* N.P.D. 70° 1'
9. 59. 36.11			36.39	56.51	20.12					Regulus.
10. 52. 16.19			16.18					10. 52. 36.36	- 5.31	* N.P.D. 26° 2'
11. 5. 27.89			28.18					11. 5. 48.38	- 2.69	* N.P.D. 81° 4'
11. 12. 38.15			38.44					11. 12. 58.64	- 2.68	$\sigma$ Leonis.
11. 27. 26.82			27.11					11. 27. 47.34	- 2.71	* N.P.D. 82° 21'
11. 37. 23.28			23.57					11. 37. 43.80	- 2.71	$\nu$ Virginis.
11. 40. 39.06			39.32	59.57	20.25					$\beta$ Leonis.
11. 50. 3.70			4.00					11. 50. 24.25	- 2.70	* N.P.D. 84° 46'
11. 53. 59.17			59.47					11. 54. 19.73	- 2.90	* N.P.D. 84° 54'
11. 59. 6.83			7.13					11. 59. 27.39	- 2.71	* N.P.D. 84° 36'
1. 1. 11.64			7.26	31.88	24.62		22.98	1. 1. 30.32	+ 55.34	Polaris.
1. 1. 2.17	4.64	+ 4.78	57.61	31.54	33.93	2.05	31.21	1. 1. 28.91	+ 55.68	Polaris.
13. 0. 53.04	50.56		58.10	31.50	33.40			1. 1. 30.42	+ 55.72	Polaris SP.
1. 1. 4.23	6.04		59.01	31.46	32.45		33.26	1. 1. 32.36	+ 55.76	Polaris.
10. 53. 26.36			26.63					10. 54. 0.82	- 2.66	* N.P.D. 80° 17'
11. 5. 14.13			14.40					11. 5. 48.61	- 2.68	* N.P.D. 81° 4'
11. 12. 24.33			24.61					11. 12. 58.83	- 2.67	$\sigma$ Leonis.
11. 27. 13.20			13.47					11. 27. 47.71	- 2.70	* N.P.D. 82° 21'
11. 37. 9.30			9.58					11. 37. 43.83	- 2.72	$\nu$ Virginis.
11. 40. 25.06			25.31	59.57	34.26					$\beta$ Leonis.
11. 49. 49.83			50.11					11. 50. 24.38	- 2.71	* N.P.D. 84° 46'
11. 53. 45.06			45.34					11. 54. 19.62	- 2.72	* N.P.D. 84° 54'
11. 58. 53.00			53.28					11. 59. 27.56	- 2.73	* N.P.D. 84° 36'
12. 3. 0.41			0.69					12. 3. 34.98	- 2.73	* N.P.D. 85° 1'
13. 0. 49.01	52.79		0.33	31.44	31.11			1. 1. 34.70	+ 55.78	Polaris SP.
7. 30. 19.62			19.90	0.16	40.26	2.10	39.59	7. 31. 0.15	- 1.66	Procyon.
7. 34. 56.40			56.59	36.75	40.16			7. 35. 36.84	- 2.04	Pollux.
9. 20. 25.70			25.92					9. 21. 6.33	- 2.35	* N.P.D. 69° 51'
9. 59. 15.64			15.90	56.43	40.53			9. 59. 56.36	- 2.50	Regulus.
10. 51. 55.67			55.60					10. 52. 36.14	- 5.13	* N.P.D. 26° 2'
11. 28. 28.69			28.97					11. 29. 9.56	- 2.69	* N.P.D. 82° 51'
11. 37. 3.08			3.36					11. 37. 43.97	- 2.72	$\nu$ Virginis.
11. 28. 20.28		+ 4.70	20.56			2.15	47.78	11. 29. 9.37	- 2.69	* N.P.D. 82° 51'
11. 40. 10.48			10.73	59.56	48.83					$\beta$ Leonis.
11. 28. 15.87			16.16			2.08	52.23	11. 29. 9.38	- 2.67	* N.P.D. 82° 51'
11. 40. 6.06			6.31	59.53	53.24					$\beta$ Leonis.
11. 49. 30.91			31.20					11. 50. 24.45	- 2.70	* N.P.D. 84° 46'
11. 53. 26.50			26.59					11. 54. 19.85	- 2.71	* N.P.D. 84° 54'
11. 58. 33.94			34.23					11. 59. 27.50	- 2.72	* N.P.D. 84° 36'

Error of Collimation = + 1".13.

Level Error = - 0".21. From March 27 = - 0".27. From April 3 = - 0".60. From April 12 = - 0".45.

The two sets of three consecutive transits of Polaris April 2 and 3, give for Meridian Error + 4".85 and + 4".71, the mean of which is used from April 2.

The Meridian Error from April 10 by Polaris, Polaris SP, and Polaris April 14 and 15.



Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Apr. 12	* N.P.D. 85°. 4'.....	1,0	14,2	27,7	41,4	55,0	8,6	12. 3. 22,1		B.
	(a) Polaris SP.....	35.25,2	43.46,8	52. 9,3	0.32,2	9. 4,7	17.16,6	13. 25. 42,2		B.
Apr. 14	(a) Polaris.....	55.29,3	43.55,8	... ..	0.41,5	8.59,7	17.22,6	1. ....	+ 3. 19,91	B.
Apr. 15	$\alpha$ Hydræ.....	8,3	22,2	35,9	49,2	3,0	16,3	9. 19. 30,1		B.
	(a) Regulus.....	...	29,8	43,3	57,2	11,1	25,1	9. 59. ....	+ 0,01	B.
	Polaris SP.....	35.18,4	43.42,7	52. 7,3	0.27,4	8.56,8	17. 8,6	13. 25. 33,5		B.
	Polaris.....	...	...	52. 7,6	0.42,5	...	...	1. 25. 45,2	- 5. 33,64	B.
Apr. 17	$\alpha$ Hydræ.....	4,3	17,8	31,1	45,0	58,8	11,9	9. 19. 25,4		B.
	Regulus.....	11,2	25,2	38,6	52,9	6,9	20,2	9. 59. 34,1		B.
	(b) * N.P.D. 83°. 14'.....	46,3	59,6	12,9	26,8	40,3	53,8	11. 39. 7,5		B.
Apr. 18	Polaris.....	35.23,7	43.47,5	52. 2,7	0.30,6	8.54,6	17.16,4	1. ....	+ 4. 11,47	B.
Apr. 19	$\alpha$ Hydræ.....	0,1	14,1	27,2	41,1	54,3	8,1	9. 19. 21,4		B.
	Regulus.....	7,8	21,1	35,0	49,0	3,0	16,4	9. 59. 30,1		B.
	(c) * N.P.D. 83°. 14'.....	42,1	55,8	8,9	22,3	35,7	49,2	11. 39. 2,6		B.
	(a) Polaris SP.....	...	43.34,7	51.58,2	0.19,0	...	17. 2,6	13. ....	+ 2. 6,75	B.
	(a) Polaris.....	36.22,6	...	...	1.31,2	9.50,8	18.17,2	1. ....	- 0. 0,74	B.
Apr. 20	(a) $\alpha$ Hydræ.....	58,3	12,2	25,3	39,0	52,6	6,1	9. 20. 19,9		B.
	(c) * N.P.D. 83°. 14'.....	40,1	53,8	7,3	20,8	34,3	47,7	11. 40. 1,1		B.
Apr. 21	$\gamma$ Leonis.....	6,6	21,1	36,0	50,9	6,1	20,6	10. 47. 36,0		B.
	$\beta$ Leonis.....	6,3	20,1	34,0	48,0	2,1	16,1	11. 41. 30,0		B.
	2 Canum Venat.....	6,8	24,9	42,4	0,7	18,9	36,6	12. 8. 54,6		B.
Apr. 23	(d) $\gamma$ Leonis.....	2,7	17,2	32,1	47,0	2,1	17,0	10. 47. 31,9		B.
	(a) * N.P.D. 82°. 6'.....	0,8	14,3	27,9	41,5	55,3	9,0	10. 58. 22,5		B.
	$\phi$ Leonis.....	41,3	55,1	8,3	21,9	35,2	48,8	11. 9. 2,2		B.
	$\Sigma$ 1529. <i>f</i> .....	24,1	37,3	50,4	4,3	18,0	31,2	11. 11. 44,9		B.
	(c) $\Sigma$ 1541.....	43,4	2,2	...	42,4	3,1	...	11. 19. 42,5	+ 3,91	B.
	$\Sigma$ 1553.....	26,9	51,7	15,9	40,9	5,9	30,7	11. 28. 54,9		B.
	$\beta$ Leonis.....	2,5	16,1	30,0	44,0	57,9	12,1	11. 41. 26,2		B.
	2 Canum Venat.....	3,0	20,9	38,3	56,6	14,9	33,0	12. 8. 50,5		B.
	$\Sigma$ 1633. <i>p</i> .....	42,2	57,2	12,3	28,0	42,9	58,3	12. 13. 13,6		B.
	(a) Spica.....	55,6	9,8	23,2	36,9	50,3	4,1	13. 17. 17,9		B.
Apr. 26	(a) Regulus.....	54,0	...	...	...	49,2	3,1	10. 0. 17,1	- 10,38	B.
	(c) $\Sigma$ 1426.....	13,7	27,1	40,4	54,8	7,9	21,3	10. 12. 35,1		B.
Apr. 27	(a) Polaris.....	...	44.36,6	52.46,7	1.17,7	...	18. 1,8	1. 26. 23,5	- 3. 20,70	B.
Apr. 29	$\alpha$ Hydræ.....	42,0	55,8	9,0	23,0	36,4	50,0	9. 20. 4,0		B.
	Regulus.....	50,1	3,4	17,0	31,0	45,0	58,9	10. 0. 12,2		B.
	$\Sigma$ 1426.....	9,1	22,4	36,0	49,9	3,2	17,1	10. 12. 30,3		B.
	(f) $\Sigma$ 1447.....	56,3	11,2	25,7	40,9	55,3	10,2	10. 25. 25,1		B.
	35 Sextantis.....	1,8	15,5	29,1	42,8	56,2	9,6	10. 35. 23,2		B.
	$\gamma$ Leonis.....	52,1	7,2	21,9	37,1	51,9	7,0	10. 47. 21,7		B.
	* N.P.D. 80°. 17'.....	54,1	7,9	21,3	35,2	48,9	2,8	10. 54. 16,1		B.
	(g) $\Sigma$ 1507.....	47,9	1,7	15,7	...	...	...	10. 58. 10,3	+ 10,21	B.
	$\phi$ Leonis.....	31,1	45,0	58,2	11,9	25,2	39,0	11. 8. 53,0		B.
	$\Sigma$ 1529. <i>f</i> .....	14,1	27,4	40,8	54,5	7,9	21,4	11. 11. 34,9		B.
	$\Sigma$ 1541.....	33,4	53,2	12,8	33,1	52,4	12,6	11. 19. 31,9		B.
	(h) $\Sigma$ 1553.....	...	41,3	6,0	31,0	55,2	20,1	11. 28. 44,9	- 12,34	B.
	2 Canum Venat.....	53,0	11,2	28,3	46,9	5,0	22,7	12. 8. 40,6		B.
	$\Sigma$ 1633. <i>p</i> .....	32,2	47,6	2,5	18,0	33,1	48,1	12. 13. 3,7		B.
	(i) Spica.....	46,1	59,7	12,9	27,2	40,6	54,1	13. 17. 8,2		B.
	1 Bootis.....	59,3	13,6	27,7	42,2	56,8	11,1	13. 33. 25,4		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

The Transit was levelled April 21, 3<sup>h</sup>, and April 29, 2<sup>h</sup>.April 19, 22<sup>h</sup>. The clock was put forward 1<sup>m</sup>.

(a) Cloudy. (b) Very hazy and faint. (c) Very faint and unsatisfactory. (d) Temperature on the 23rd, at 8<sup>h</sup>, was 44°, on the 26th, at 8<sup>h</sup>, 58°. The clock's rate seems affected by the change. (e) Cloudy: some wires very doubtful. (f) Not good. (g) Very faint. (h) Cloud. (i) Blazing.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
12. 2. 41.43		+ 4.70	41.72			2.08	52.23	12. 3. 34.99	- 2.73	* N.P.D. 85°. 4'.
13. 0. 33.86			39.14	32.67	53.53			1. 1. 32.50	+ 54.55	Polaris SP.
1. 0. 37.69	39.50		32.89	33.02	60.13	2.11	57.92	1. 1. 30.90	+ 54.20	Polaris.
9. 18. 49.29			49.63	48.42	58.79					$\alpha$ Hydree.
9. 58. 57.31			57.58	56.34	58.76					Regulus.
13. 0. 27.81	25.68		33.09	33.08	59.99			1. 1. 32.15	+ 54.14	Polaris SP.
1. 0. 38.13	40.24		33.33	33.14	59.81		60.03	1. 1. 33.45	+ 54.08	Polaris.
9. 18. 44.83			45.17	48.39	63.22	2.09	62.43			$\alpha$ Hydree.
9. 58. 52.73			53.00	56.31	63.31					Regulus.
11. 38. 26.74			27.03					11. 39. 30.47	- 2.68	* N.P.D. 83°. 14'.
1. 0. 30.72	52.23	+ 4.24	25.99	33.64	67.65	1.90	66.38	1. 1. 32.45	+ 53.58	Polaris.
9. 18. 40.90			41.20	48.37	67.17					$\alpha$ Hydree.
9. 58. 48.92			49.15	56.29	67.14					Regulus.
11. 38. 22.37			22.61					11. 39. 29.91	- 2.68	* N.P.D. 83°. 14'.
13. 0. 20.37	18.81		25.50	33.78	68.28			1. 1. 32.91	+ 53.44	Polaris SP.
1. 1. 29.71	31.22		24.98	33.92	8.94	1.94	8.24	1. 1. 33.30	+ 53.30	Polaris.
9. 19. 39.06			39.36	48.33	8.99					$\alpha$ Hydree.
11. 39. 20.73			20.97					11. 39. 30.13	- 2.66	* N.P.D. 83°. 14'.
10. 46. 51.04			51.21			2.00	10.22	10. 47. 2.33	- 2.78	$\delta$ Leonis.
11. 40. 48.09			48.31	59.51	11.20					$\beta$ Leonis.
12. 8. 0.70			0.80					12. 8. 12.03	- 3.42	2 Canum Venat.
10. 46. 47.13			47.32			1.98	14.19	10. 47. 2.40	- 2.75	$\delta$ Leonis.
10. 57. 41.61			41.85					10. 57. 56.94	- 2.51	* N.P.D. 82°. 6'.
11. 8. 21.83			22.11					11. 8. 37.22	- 2.43	$\phi$ Leonis.
11. 11. 4.31			4.59					11. 11. 19.70	- 2.47	$\Sigma$ 1529. f.
11. 18. 42.63			42.71					11. 18. 57.83	- 3.53	$\Sigma$ 1541.
11. 27. 40.98			40.99					11. 27. 56.13	- 4.14	$\Sigma$ 1553.
11. 40. 44.11			44.33	59.50	15.17					$\beta$ Leonis.
12. 7. 56.75			56.85					12. 8. 12.04	- 3.41	2 Canum Venat.
12. 12. 27.79			27.96					12. 12. 43.16	- 3.05	$\Sigma$ 1633. p.
13. 16. 36.83			37.14	52.40	15.26					Spica.
9. 59. 35.47		+ 4.12	35.69	56.20	20.51	1.48	19.89			Regulus.
10. 11. 54.33			54.58					10. 12. 15.10	- 2.26	$\Sigma$ 1426.
1. 1. 16.56			12.13	36.88	24.75	1.40	22.98	1. 1. 35.17	+ 50.34	Polaris.
9. 19. 22.85			23.18	48.23	25.05		24.38	9. 19. 48.10	- 1.74	$\alpha$ Hydree.
9. 59. 31.08			31.30	56.17	24.87			9. 59. 56.26	- 2.24	Regulus.
10. 11. 49.72			49.97					10. 12. 14.94	- 2.23	$\Sigma$ 1426.
10. 24. 40.67			40.85					10. 25. 5.84	- 2.56	$\Sigma$ 1447.
10. 34. 42.60			42.85					10. 35. 7.85	- 2.31	35 Sextantis.
10. 46. 36.99			57.16					10. 47. 2.17	- 2.69	$\delta$ Leonis.
10. 53. 35.19			35.43					10. 54. 0.44	- 2.46	* N.P.D. 80°. 17'.
10. 57. 29.11			29.35					10. 57. 54.37	- 2.46	$\Sigma$ 1507.
11. 8. 11.20			12.19					11. 8. 37.22	- 2.39	$\phi$ Leonis.
11. 10. 54.45			54.70					11. 11. 19.73	- 2.42	$\Sigma$ 1529. f.
11. 18. 32.77			32.85					11. 18. 57.89	- 3.44	$\Sigma$ 1541.
11. 27. 50.74			50.76					11. 27. 55.81	- 4.02	$\Sigma$ 1553.
12. 7. 46.82			46.93					12. 8. 12.02	- 3.36	2 Canum Venat.
12. 12. 17.89			18.06					12. 12. 43.15	- 3.02	$\Sigma$ 1633. p.
13. 16. 26.97			27.28	52.41	25.13			13. 16. 52.43	- 2.84	Spica.
13. 32. 42.30			42.49					13. 33. 7.66	- 3.02	1 Bootis.

Error of Collimation = + 1".13.

Level Error = - 0".45. From April 18, = - 0".75. From April 26, = - 0".69

The Meridian Error from April 18, by Polaris, Polaris SP, and Polaris, April 18 and 19. That from April 26, by Polaris, Polaris SP, and Polaris, April 29 and 30.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Apr. 29	(a) $\Sigma$ 1790. <i>p</i> .....	47,2	0,8	14,5	28,0	41,3	55,0	13.48.8,3	- 34,29	B.
	Piazzi XIII. 277.....	.....	.....	.....	44,9	7,5	30,0	13.53.53,1		B.
	$\Sigma$ 1804.....	44,3	59,0	13,0	27,7	42,0	56,8	14.1.11,5		B.
	Arcturus.....	19,3	33,9	48,1	2,2	16,5	31,0	14.8.45,2		B.
	Polaris.....	36.8,5	44.33,4	52.44,8	1.17,3	9.37,5	17.58,2	1.26.22,6		B.
Apr. 30	$\alpha$ Hydræ.....	40,9	54,6	7,8	21,3	34,9	49,0	9.20.2,3		B.
	Regulus.....	48,1	2,1	15,5	29,2	43,1	57,0	10.0.10,9		B.
	Polaris SP.....	35.51,7	44.21,3	52.44,5	1.9,2	9.34,6	17.45,6	13.26.13,4		B.
	(b) Spica.....	45,2	58,2	12,0	26,0	39,3	53,1	13.17.7,1		B.
	1 Bootis. <i>p</i> .....	57,8	12,3	26,3	41,1	55,4	10,1	13.33.24,2		B.
	$\Sigma$ 1790.....	46,1	59,7	12,9	26,2	40,0	53,2	13.48.7,1		B.
	Piazzi XIII. 277.....	34,9	57,6	20,1	43,2	6,1	28,8	13.53.51,5		B.
	$\Sigma$ 1804.....	43,1	58,1	12,0	26,8	41,1	55,6	14.1.10,1		B.
	Arcturus.....	18,1	32,3	46,1	1,1	15,2	29,5	14.8.44,1		B.
	Polaris.....	36.10,8	44.35,3	52.46,2	1.16,5	9.38,2	17.59,3	1.26.21,8		B.
May 1	Regulus.....	47,1	0,9	14,3	28,1	42,0	55,8	10.0.9,8	- 13,44	B.
	35 Sextantis.....	59,1	12,6	26,1	39,9	53,1	7,0	10.35.20,3		B.
	* N.P.D. 82°. 6'. <i>f</i> ....	48,1	2,1	14,9	28,9	42,2	56,1	10.58.9,8		B.
	$\phi$ Leonis.....	28,7	42,1	55,4	9,1	22,9	36,1	11.8.49,5		B.
	$\Sigma$ 1529. <i>p</i> .....	.....	.....	38,0	51,2	5,0	18,4	11.11.31,1		B.
	(c) $\Sigma$ 1541.....	30,9	50,7	10,5	30,7	50,1	10,2	11.19.29,5		B.
	$\Sigma$ 1553. <i>p</i> .....	14,1	38,7	3,0	28,1	52,9	17,4	11.28.42,1		B.
	$\beta$ Leonis.....	49,7	3,6	17,2	31,4	45,3	59,3	11.41.13,2		B.
	2 Comæ Ber. <i>f</i> .....	59,1	13,7	28,0	42,9	57,0	12,0	11.56.26,4		B.
	$\Sigma$ 1632.....	1,5	18,6	35,4	53,0	10,0	27,6	12.12.44,5		B.
	$\Sigma$ 1661.....	52,0	5,8	19,3	33,1	47,1	0,8	12.28.14,9		B.
	Piazzi XII. 202. <i>nf</i> ...	55,0	9,2	23,0	37,9	52,1	6,8	12.44.21,0		B.
	Spica.....	43,1	57,3	10,5	24,0	37,8	51,4	13.17.5,1		B.
	1 Bootis. <i>sp</i> .....	56,9	11,0	25,0	39,4	54,0	8,5	13.33.23,3		B.
	$\Sigma$ 1790.....	45,1	57,9	11,2	25,0	38,7	52,1	13.48.5,9		B.
	Piazzi XIII. 277.....	33,2	56,1	18,3	41,5	4,3	27,2	13.53.50,1		B.
	$\Sigma$ 1804.....	41,9	56,0	10,6	25,0	39,7	54,0	14.1.9,0		B.
	(b) Arcturus.....	16,6	31,1	45,4	0,1	13,9	28,2	14.8.43,0		B.
	$\Sigma$ 1838. <i>sf</i> .....	15,1	28,8	42,2	56,6	10,2	24,0	14.16.37,7		B.
May 5	$\alpha$ Hydræ.....	34,2	47,9	1,3	15,1	28,6	42,1	9.19.55,9	+ 0,01	B.
	Regulus.....	41,9	55,6	9,1	23,0	36,9	50,8	10.0.4,5		B.
	$\Sigma$ 1529. <i>p</i> .....	5,9	19,2	32,1	46,1	59,8	13,2	11.11.26,1		B.
	$\Sigma$ 1541.....	25,7	45,3	5,1	25,1	45,0	4,6	11.19.24,3		B.
	90 Leonis. <i>f</i> .....	12,9	27,2	40,7	55,0	9,2	23,1	11.26.37,5		B.
	Piazzi XI. 126.....	6,1	18,9	32,2	46,1	59,5	13,1	11.30.26,3		B.
	2 Comæ Ber.....	54,1	8,6	22,7	37,3	52,1	6,6	11.56.21,0		B.
	$\Sigma$ 1633. <i>sp</i> .....	24,1	39,7	54,8	10,0	25,2	40,5	12.12.56,1		B.
	(d) $\Sigma$ 1653. <i>sf</i> .....	13,2	29,3	45,0	1,5	17,2	33,3	12.25.49,6		B.
	(c) Spica.....	.....	52,1	5,3	19,2	33,0	46,9	13.16. ....		B.
	* N.P.D. 97°. 48'. ....	47,2	1,1	14,0	28,1	41,4	55,1	13.26.8,9		B.
	(b) Arcturus.....	12,0	26,1	40,3	54,9	9,0	23,2	14.8.37,4		B.
	$\Sigma$ 1838. <i>sf</i> .....	10,1	24,1	37,5	51,3	5,1	19,0	14.16.32,9		B.
	$\Sigma$ 1878.....	11,2	40,1	8,0	36,9	5,9	34,3	14.39.3,2		B.
May 6	$\alpha$ Hydræ.....	33,1	46,7	0,1	13,9	27,3	41,0	9.19.54,4		B.
	Regulus.....	40,4	54,0	7,9	21,7	35,6	49,2	10.0.3,0		B.
	(c) 35 Sextantis.....	53,0	6,4	19,7	33,1	46,9	0,5	10.35.14,1		B.
	$\Sigma$ 1632.....	55,1	12,1	29,2	46,7	4,1	21,0	12.12.38,4		B.
	(a) $\Sigma$ 1653.....	11,2	27,3	44,0	0,3	15,5	32,0	12.25.48,1		B.
	* N.P.D. 71°. 51'. ....	28,8	43,0	56,4	11,1	25,0	39,2	13.8.53,3		B.
	(b) Spica.....	36,9	50,8	4,2	18,1	31,9	45,3	13.16.59,2		B.
	* N.P.D. 97°. 48'. ....	46,1	59,7	13,1	26,8	40,1	54,1	13.26.7,7		B.
	(b) Arcturus.....	11,1	25,2	39,4	53,3	8,0	22,1	14.8.36,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.  
The Transit was levelled May 6, 2<sup>h</sup>.

(a) Very faint.  
(b) Blazing.  
(c) Not very good.

(d) Hazy, very faint.  
(e) Cloudy.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
13 47.27,87		+ 4,12	28,15			1,40	24,38	13 47.53,33	- 2,92	Σ 1790. <i>p.</i>
13 52.44,58			44,62					13 53. 9,81	- 3,85	Piazzi XIII. 277.
14. 0.27,76			27,95					14. 0.53,15	- 3,04	Σ 1804.
14. 8. 2,31			2,51	27,71	25,20			14. 8.27,71	- 2,99	Arcturus.
1. 1.14,61	16,24		10,18	37,47	27,29	1,36	25,78	1. 1.36,02	+ 49,75	Polaris.
9. 19.21,54			21,84	48,21	26,37			9. 19.48,15	- 1,72	α Hydrie.
9. 59.29,42			29,64	56,15	26,51			9. 59.55,99	- 2,22	Regulus.
13. 1. 5,76	4,00		10,59	37,63	27,04			1. 1.37,11	+ 49,59	Polaris SP.
13. 16.25,84			26,15	52,42	26,27			13. 16.52,68	- 2,85	Spica.
13. 32.41,03			41,22					13. 33. 7,77	- 3,03	1 Bootis. <i>p.</i>
13. 47.26,46			26,74					13. 47.53,30	- 2,92	Σ 1790.
13. 52.43,17			43,21					13. 53. 9,78	- 3,85	Piazzi XIII. 277.
14. 0.26,69			26,88					14. 0.53,45	- 3,04	Σ 1804.
14. 8. 0,91			1,11	27,71	26,60			14. 8.27,69	- 2,99	Arcturus.
1. 1.15,44	17,07		11,01	37,79	26,78	1,32	27,12	1. 1.38,19	+ 49,43	Polaris.
9. 59.28,29			28,51	56,14	27,63			9. 59.56,18	- 2,21	Regulus.
10. 34.39,73			39,98					10. 35. 7,68	- 2,29	35 Sextantis.
10. 57.28,87			29,11					10. 57.56,83	- 2,44	* N.P.D. 82°. 6'. <i>f.</i>
11. 8. 9,12			9,40					11. 8.37,13	- 2,37	φ Leonis.
11. 10.51,30			51,57					11. 11.19,30	- 2,41	Σ 1529. <i>p.</i>
11. 18.30,37			30,45					11. 18.58,19	- 3,41	Σ 1541.
11. 27.28,05			28,07					11. 27.55,82	- 3,98	Σ 1553. <i>p.</i>
11. 40.31,38			31,59	59,44	27,85			11. 40.59,35	- 2,69	β Leonis.
11. 55.42,73			42,92					11. 56.10,69	- 2,86	2 Comae Ber. <i>f.</i>
12. 11.52,94			53,07					12. 12.20,86	- 3,29	Σ 1632.
12. 27.33,28			33,50					12. 28. 1,31	- 2,82	Σ 1661.
12. 43.37,86			38,06					12. 44. 5,88	- 2,95	Piaz. XII. 202. <i>nf.</i>
13. 16.24,17			24,48	52,42	27,94			13. 16.52,33	- 2,85	Spica.
13. 32.39,73			39,92					13. 33. 7,78	- 3,03	1 Bootis. <i>sp.</i>
13. 47.25,13			25,11					13. 47.53,29	- 2,93	Σ 1790.
13. 52.41,53			41,57					13. 53. 9,45	- 3,85	Piazzi XIII. 277.
14. 0.23,17			23,56					14. 0.53,25	- 3,05	Σ 1804.
14. 7.59,75			59,95	27,72	27,77			14. 8.27,85	- 3,00	Arcturus.
14. 15.56,37			56,59					14. 16.24,49	- 2,98	Σ 1838. <i>zf.</i>
9. 19.15,01			15,29	48,15	32,86	1,24	32,24	9. 19.48,01	- 1,66	α Hydrie.
9. 59.23,11			23,30	56,09	32,79			9. 59.56,06	- 2,16	Regulus.
11. 10.46,06			46,31					11. 11.19,13	- 2,37	Σ 1529. <i>p.</i>
11. 18.25,01			25,04					11. 18.57,86	- 3,33	Σ 1541.
11. 23.55,09			55,26					11. 26.28,09	- 2,66	90 Leonis. <i>f.</i>
11. 29.46,03			46,29					11. 30.19,12	- 2,45	Piazzi XI. 126.
11. 55.37,49			37,64					11. 56.10,49	- 2,84	2 Comae Ber.
12. 12.10,05			10,18					12. 12.43,05	- 2,97	Σ 1633. <i>sp.</i>
12. 25. 1,30			1,40					12. 25.34,28	- 3,11	Σ 1653. <i>zf.</i>
13. 16.19,31			19,60	52,42	32,82			13. 16.52,53	- 2,85	Spica.
13. 25.27,97			28,25					13. 26. 1,18	- 2,88	* N.P.D. 97°. 48'.
14. 7.54,70			54,86	27,73	32,87			14. 8.27,83	- 3,01	Arcturus.
14. 15.51,43			51,62					14. 16.24,60	- 3,00	Σ 1838. <i>zf.</i>
14. 37.37,09			36,97					14. 38. 9,97	- 4,18	Σ 1878.
9. 19.13,79			14,07	48,15	34,06	1,23	33,47	9. 19.48,02	- 1,64	α Hydrie.
9. 59.21,68			21,87	56,08	34,21			9. 59.55,85	- 2,15	Regulus.
10. 34.33,38			33,60					10. 35. 7,61	- 2,25	35 Sextantis.
12. 11.46,96			46,74					12. 12.20,83	- 3,21	Σ 1632.
12. 24.29,77			29,87					12. 25.33,97	- 3,10	Σ 1653.
13. 8.10,97			11,14					13. 8.45,38	- 2,96	* N.P.D. 71°. 51'.
13. 16.18,06			18,33	52,42	34,07			13. 16.52,50	- 2,85	Spica.
13. 25.26,80			27,08					13. 26. 1,24	- 2,89	* N.P.D. 97°. 48'.
14. 7.53,63			53,79	27,74	33,95			14. 8.27,98	- 3,02	Arcturus.

Error of Collimation = + 1".13

Level Error = - 0".69 From May 5 = - 1".27

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	
May 6	$\Sigma$ 1838. <i>sf.</i> .....	9,1	22,9	36,2	50,1	4,0	17,8	14. 16. 31,6		B.
	$\Sigma$ 1858. ....	43,1	0,1	16,2	33,1	50,0	6,7	14. 27. 23,0		B.
	$\Sigma$ 1878. ....	10,1	38,8	6,9	36,1	4,7	32,9	14. 39. 1,8		B.
May 10	(a) Polaris. ....	36. 1,8	44.25,3	52.38,4	1.11,5	....	17.52,2	1. 26. 12,8	+ 1. 23,65	B.
May 12	(b) $\alpha$ Hydræ .....	24,8	38,4	51,8	5,6	19,0	32,8	9. 19. 46,1		B.
	Regulus .....	32,0	45,8	59,3	13,2	27,0	41,0	9. 59. 54,7		B.
	$\Sigma$ Comæ Ber. <i>nf.</i> .....	44,1	58,7	13,2	28,0	42,7	57,0	11. 56. 11,5		B.
	$\Sigma$ 1608. <i>nf.</i> .....	44,0	7,2	29,8	53,1	16,4	39,3	12. 4. 2,9		B.
	$\Sigma$ 1632. ....	46,7	4,0	20,9	38,2	55,5	13,0	12. 12. 30,0		B.
	Polaris SP. ....	....	44. 7,8	52.32,4	0.54,3	9.24,6	17.34,8	13. 26. 1,7	- 4. 11,20	B.
	(a) $\beta$ Ursæ Minoris. ....	....	56,2	46,3	38,2	29,7	21,1	14. 53. 12,2	- 25,77	B.
	$\eta$ Coronæ Borealis. ....	11,9	27,2	42,9	58,9	14,3	30,0	15. 16. 45,5		B.
	$\phi$ Libræ .....	23,9	38,1	52,1	6,7	20,7	35,1	15. 29. 49,3		B.
	Polaris. ....	36. 2,4	44.25,2	52.41,2	1.10,6	9.29,7	17.50,5	1. 26. 15,6		B.
May 13	(a) $\alpha$ Hydræ .....	23,4	36,8	50,2	4,1	17,8	31,1	9. 19. 44,8		B.
	Regulus .....	30,6	44,6	58,1	12,1	25,7	39,5	9. 59. 53,3		B.
May 14	(a) $\alpha$ Hydræ .....	21,9	35,8	48,8	3,0	16,3	29,7	9. 19. 43,5		B.
	(a) Regulus .....	28,9	43,0	56,5	10,9	24,4	38,2	9. 59. 51,9		B.
	$\Sigma$ 1608. <i>nf.</i> .....	42,2	4,6	27,0	50,6	13,4	36,4	12. 3. 59,3		B.
	(c) $\Sigma$ 1653. <i>sf.</i> .....	2,7	17,7	33,4	49,1	5,4	21,1	12. 25. 36,5		B.
	Polaris SP. ....	35.47,3	44. 6,7	52.31,5	0.52,4	9.23,6	17.34,3	13. 25. 59,7		B.
	$\kappa$ Bootis. <i>nf.</i> .....	59,2	21,2	43,0	5,6	27,6	49,9	14. 8. 12,0		B.
	(c) $\Sigma$ 1878. ....	58,9	27,6	55,9	24,9	53,1	21,9	14. 38. 50,6		B.
	$\beta$ Ursæ Minoris. ....	....	53,3	42,9	35,5	26,5	18,1	14. 53. 9,4	- 25,77	B.
	$\eta$ Coronæ Borealis. ....	9,1	24,5	40,1	56,0	11,6	27,0	15. 16. 43,0		B.
	$\phi$ Libræ .....	21,1	35,2	49,0	3,7	17,8	32,0	15. 29. 46,0		B.
May 15	Polaris. ....	35.59,8	44.22,4	52.35,8	1. 5,7	9.23,2	17.48,3	1. 26. 11,7		B.
	$\alpha$ Hydræ .....	20,6	34,1	47,4	1,2	15,0	28,5	9. 19. 41,9		B.
	Regulus .....	27,9	41,8	55,1	9,2	23,0	36,7	9. 59. 50,7		B.
	$\Sigma$ 1661. ....	32,9	46,9	0,5	14,1	28,0	41,9	12. 27. 55,7		B.
	Polaris SP. ....	35.44,4	44. 7,2	52.30,8	0.50,5	9.18,7	17.33,2	13. 25. 54,7		B.
	$\kappa$ Bootis .....	57,9	20,1	41,7	4,4	26,2	48,5	14. 8. 11,0		B.
	$\Sigma$ 1858. ....	30,5	47,2	4,1	20,6	37,1	54,0	14. 27. 10,9		B.
	$\Sigma$ 1882. ....	0,4	28,8	56,2	25,3	54,0	22,0	14. 40. 50,6		B.
	$\Sigma$ 1895. ....	47,3	5,0	22,2	40,6	58,1	16,1	14. 51. 34,0		B.
	(d) $\kappa$ Bootis .....	49,1	9,4	29,1	50,0	10,1	30,1	14. 58. 50,5		B.
May 18	$\eta$ Coronæ Borealis. ....	7,9	23,0	38,7	54,4	10,2	26,1	15. 16. 41,5		B.
	$\chi$ Libræ .....	26,3	40,8	55,4	10,2	24,6	39,1	15. 30. 53,6		B.
	(a) Regulus .....	23,7	37,4	51,0	5,0	18,9	32,5	9. 59. 46,0		B.
	$\Sigma$ 1608. ....	35,9	58,4	21,3	44,9	8,1	30,7	12. 3. 54,0		B.
	$\Sigma$ 1661. ....	29,1	42,7	57,0	10,4	24,1	38,0	12. 27. 52,0		B.
	Piazzi XII. 202. <i>nf.</i> ..	31,7	46,1	0,2	15,0	29,2	43,9	12. 43. 58,2		B.
	$\Sigma$ 1690. ....	34,9	48,0	1,3	15,1	28,5	42,1	12. 47. 55,6		B.
	* N.P.D. 71°. 51'. ....	12,1	26,1	40,0	54,3	8,9	23,0	13. 8. 37,1		B.
	(c) Spica. ....	20,2	34,1	48,2	1,8	15,3	28,9	13. 16. 42,3		B.
	(a) * N.P.D. 97°. 48'. ....	....	....	....	10,2	23,8	37,1	13. 25. 51,1	- 20,40	B.
May 23	$\kappa$ Bootis .....	53,4	16,1	37,6	0,2	22,0	44,2	14. 8. 6,5		B.
	$\epsilon$ Bootis .....	29,1	44,4	59,3	15,0	30,1	45,2	14. 38. 0,7		B.
	$\theta$ Bootis. <i>sp.</i> .....	28,0	48,1	8,6	29,9	50,1	11,1	14. 44. 31,3		B.
	(a) $\Sigma$ 1895. <i>sp.</i> .....	43,1	0,9	18,5	36,9	54,2	12,1	14. 51. 29,9		B.
	$\kappa$ Bootis. <i>sp.</i> .....	44,8	5,1	25,1	45,1	5,1	25,6	14. 58. 46,0		B.
	(a) $\chi$ Libræ .....	....	37,0	51,1	6,0	20,1	34,9	15. 30. 50,0	- 7,32	B.
	$\epsilon$ Scorpii .....	25,1	40,0	54,2	9,0	23,2	37,9	15. 50. 52,2		B.
	Regulus .....	17,6	31,3	44,9	59,0	12,6	26,5	9. 59. 40,3		C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGG*.  
The Transit was levelled May 14, 2<sup>h</sup>, and May 21, 2<sup>h</sup>.

(a) Cloudy.  
(b) Very unsteady.

(c) Faint.

(d) Most probably *nf.*: see May 18 and 26.  
(e) Disturbed: wires III and IV marked doubtful.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
14. 15. 50.24		+ 4.12	50.43			1.23	33.47	14. 16. 24.63	- 3.01	$\Sigma$ 1838. <i>sf.</i>
14. 26. 33.17			33.26					14. 27. 7.47	- 3.23	$\Sigma$ 1858.
14. 37. 35.90			35.78					14. 38. 10.00	- 4.18	$\Sigma$ 1878.
1. 1. 7.32	7.32	+ 4.43	1.30	42.09	41.69	1.38	40.46	1. 1. 41.82	+ 44.23	Polaris.
9. 19. 5.50			5.80	48.06	42.26		41.84			$\alpha$ Hydræ.
9. 59. 13.28			13.48	56.01	42.53					Regulus.
11. 55. 27.89			28.05					11. 55. 10.58	- 2.77	$\gamma$ Comæ Ber. <i>nf.</i>
12. 2. 33.24			33.21					12. 3. 35.74	- 3.69	$\Sigma$ 1608. <i>nf.</i>
12. 11. 38.33			38.42					12. 12. 20.96	- 3.14	$\Sigma$ 1632.
13. 0. 54.73	54.14		1.13	43.72	42.59			1. 1. 43.72	+ 43.50	Polaris SP.
14. 50. 38.18			37.73					14. 51. 20.42	- 5.88	$\beta$ Ursæ Minoris.
15. 15. 58.68			58.80					15. 16. 41.52	- 3.13	$\eta$ Coronæ Bor.
15. 29. 6.56			6.91					15. 29. 49.64	- 3.30	$\phi$ Libræ.
1. 1. 7.89	8.39		1.87	43.96	42.09	1.39	43.21	1. 1. 45.14	+ 43.26	Polaris.
9. 19. 4.03			4.33	48.05	43.72					$\alpha$ Hydræ.
9. 59. 11.98			12.18	56.00	43.82					Regulus.
9. 19. 2.71		+ 4.08	2.99	48.04	45.05		44.59			$\alpha$ Hydræ.
9. 59. 10.54			10.73	55.98	45.25					Regulus.
12. 2. 50.50			50.47					12. 3. 35.76	- 3.65	$\Sigma$ 1608. <i>nf.</i>
12. 24. 49.42			49.53					12. 25. 34.84	- 4.34	$\Sigma$ 1653. <i>sf.</i>
13. 0. 53.64	53.05		59.48	44.68	45.20			1. 1. 44.82	+ 42.54	Polaris SP.
14. 7. 5.50			5.49					14. 7. 50.90	- 3.70	$\alpha$ Bootis. <i>nf.</i>
14. 37. 24.70			24.58					14. 38. 10.02	- 4.15	$\Sigma$ 1878.
14. 50. 35.18			34.77					14. 51. 20.22	- 5.85	$\beta$ Ursæ Minoris.
15. 15. 55.90			56.01					15. 16. 41.49	- 3.14	$\eta$ Coronæ Bor.
15. 29. 3.54			3.86					15. 29. 49.35	- 3.32	$\phi$ Libræ.
1. 1. 3.84	4.34		38.34	44.92	46.58		45.99	1. 1. 44.39	+ 42.30	Polaris.
9. 19. 1.24			1.52	48.03	46.51					$\alpha$ Hydræ.
9. 59. 9.20			9.39	55.97	46.58					Regulus.
12. 27. 14.29			14.48					12. 28. 1.19	- 2.75	$\Sigma$ 1661.
13. 0. 51.36	50.77		57.20	45.19	47.99			1. 1. 43.94	+ 42.03	Polaris SP.
14. 7. 4.26			4.25					14. 7. 51.06	- 3.69	$\alpha$ Bootis.
14. 26. 20.63			20.72					14. 27. 7.54	- 3.25	$\Sigma$ 1858.
14. 39. 25.33			25.23					14. 40. 12.07	- 4.13	$\Sigma$ 1882.
14. 50. 40.47			40.53					14. 51. 27.38	- 3.31	$\Sigma$ 1895.
14. 57. 49.75			49.76					14. 58. 36.62	- 3.43	$\gamma$ Bootis.
15. 15. 54.54			54.65					15. 16. 41.52	- 3.15	$\eta$ Coronæ Bor.
15. 30. 10.00			10.35					15. 30. 57.24	- 3.41	$\chi$ Libræ.
9. 59. 4.93			5.11	55.94	50.83	1.31	50.06	9. 59. 55.72	- 2.01	Regulus.
12. 2. 44.77			44.71					12. 3. 35.43	- 3.56	$\Sigma$ 1608.
12. 27. 10.47			10.65					12. 28. 1.39	- 2.73	$\Sigma$ 1661.
12. 43. 14.90			15.05					12. 44. 5.80	- 2.87	Piaz. XII. 202. <i>nf.</i>
12. 47. 15.07			15.33					12. 48. 6.09	- 2.72	$\Sigma$ 1690.
13. 7. 54.50			54.65					13. 8. 45.42	- 2.92	* N.P.D. 71° 51'
13. 16. 1.54			1.81	52.41	50.60			13. 16. 52.59	- 2.84	Spica.
13. 25. 10.15			10.42					13. 26. 1.21	- 2.89	* N.P.D. 97° 48'
14. 7. 0.00			59.96					14. 7. 50.79	- 5.67	$\alpha$ Bootis.
14. 37. 14.53			14.95	5.78	50.83			14. 38. 5.81	- 3.14	$\epsilon$ Bootis.
14. 43. 29.59			29.57					14. 44. 20.43	- 3.52	$\gamma$ Bootis. <i>sp.</i>
14. 50. 36.52			36.56					14. 51. 27.43	- 3.31	$\Sigma$ 1895. <i>sp.</i>
14. 57. 45.26			45.25					14. 58. 36.13	- 3.42	$\gamma$ Bootis. <i>sp.</i>
15. 30. 5.86			6.20					15. 30. 57.11	- 3.44	$\chi$ Libræ.
15. 30. 8.90			9.14					15. 31. 0.06	- 3.46	$\delta$ Scorpii
9. 58. 54.80		+ 3.45	59.04	55.88	56.84	1.42	56.18	9. 59. 55.81	- 1.95	Regulus.

Error of Collimation = + 1".13.

Level Error = - 1".27. From May 10 = - 1".25. From May 18, = - 1".48.

The Meridian Error from May 10, by Polaris May 10, and Polaris SP and Polaris May 12, the first observation being corrected to May 11 by allowing - 1".39 for loss of clock and + 0".49 for change of  $\Delta t$ .

The Meridian Error from May 14 by Polaris SP, Polaris and Polaris SP May 14 and 15. That from May 23 by Polaris SP, Polaris, and Polaris SP May 26 and 27.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		mi. s.	mi. s.	mi. s.	mi. s.	mi. s.	mi. s.	h. m. s.		
May 23	$\beta$ Leonis.....	20,3	34,4	48,1	2,3	16,2	30,2	11. 40. 44,1		C.
	Spica.....	14,2	28,0	41,3	55,4	9,0	22,8	13. 16. 36,2		G.
May 26	(a) $\alpha$ Hydra.....	5,6	19,0	32,4	45,9	59,8	13,5	9. 20. 27,1		B.
	(b) Regulus.....	13,0	26,7	40,1	54,1	8,0	21,7	10. 0. 35,3		B.
	$\Sigma$ 1690.....	23,5	37,1	50,4	4,1	17,8	31,2	12. 48. 44,8		B.
	Polaris SP.....			53.24,2	1.47,3	10.13,8	18.27,5	13. 26. 48,7	- 8. 22,10	B.
	$\Sigma$ 1785. <i>np</i> .....	5,1	20,4	35,0	50,8	6,1	21,0	13. 42. 36,2		B.
	$\epsilon$ Bootis.....	18,3	33,7	48,4	4,0	19,1	34,3	14. 38. 49,6		B.
	39 Bootis. <i>sp</i> .....	17,1	37,1	57,4	18,7	38,9	59,9	14. 45. 20,6		B.
	$\Sigma$ 1895. <i>sp</i> .....	33,0	49,9	7,8	25,7	43,1	0,9	14. 52. 19,1		B.
	44 Bootis. <i>nf</i> .....	34,2	54,2	14,3	34,9	54,7	15,1	14. 59. 35,1		B.
	(c) * N.P.D. 97°. 14'.....	15,7	29,4	43,1	57,2	11,0	24,3	15. 7. 37,7		B.
	$\alpha$ Coronæ Borealis....	13,4	28,3	43,3	58,9	14,3	29,1	15. 28. 44,0		B.
	$\alpha$ Serpentis.....	47,1	0,6	13,9	27,7	41,1	54,7	15. 37. 8,2		B.
	$\epsilon$ Scorpii.....	14,3	29,1	43,2	57,9	12,5	27,1	15. 51. 41,6		B.
	A.S.C. 1840.....	43,1	58,2	13,0	27,9	43,1	58,1	15. 59. 13,0		B.
	(d) Polaris.....			53.27,4	1.58,3	10.17,6	18.40,6	1. 27. 4,4	- 8. 20,97	B.
May 27	(d) Regulus.....	10,8	24,7	38,1	52,2	5,9	20,0	10. 0. 33,8		B.
	(e) Polaris SP.....	36.40,2	45. 2,3	53.22,5	1.49,7	10.14,8	18.28,3	13. 26. 52,4		B.
May 31	(f) Regulus.....	3,0	16,9	30,5	44,6	58,7	13,1	10. 0. 25,9		B.
	$\alpha$ Coronæ Borealis....	4,2	19,1	34,1	49,2	4,3	19,5	15. 28. 35,1		B.
	$\alpha$ Serpentis.....	37,5	51,2	4,2	17,9	31,6	45,1	15. 36. 59,1		B.
	A.S.C. 1840.....	34,1	49,0	3,9	18,9	34,0	48,8	15. 59. 4,0		B.
	16 Scorpii.....	41,7	55,1	8,9	22,6	36,1	49,7	16. 4. 3,2		B.
	$\sigma$ Coronæ Borealis....	46,2	3,0	18,6	35,1	51,4	7,9	16. 9. 24,1		B.
	Antares.....	47,2	2,1	16,9	32,3	47,2	2,3	16. 20. 17,1		B.
June 1	$\Sigma$ 1825.....	15,8	29,9	44,1	59,0	13,5	28,2	14. 9. 42,0		B.
	$\Sigma$ 1873.....	8,0	21,4	35,0	48,9	2,3	16,0	14. 37. 29,5		B.
	39 Bootis. <i>sp</i> .....	5,7	26,2	46,2	7,4	28,1	48,6	14. 45. 9,8		B.
	$\Sigma$ 1931. <i>np</i> .....	13,1	27,0	40,2	54,0	8,1	21,8	15. 11. 35,3		B.
	(f) $\alpha$ Coronæ Borealis....	2,1	17,1	32,2	47,4	2,4	18,2	15. 28. 32,8		B.
	$\alpha$ Serpentis.....	35,7	49,1	2,2	16,1	29,9	43,1	15. 36. 57,0		B.
	A.S.C. 1840.....	31,9	46,9	2,1	17,0	31,8	47,1	15. 59. 2,1		B.
	16 Scorpii.....	39,9	53,2	7,0	20,7	34,1	47,8	16. 4. 1,5		B.
	$\sigma$ Coronæ Borealis....	44,2	0,8	16,9	33,4	49,9	5,9	16. 9. 22,2		B.
	$i$ Scorpii.....	39,4	54,0	8,7	23,8	38,2	52,9	16. 21. 8,0		B.
June 3	$\zeta$ Ursæ Majoris.....	5,9	30,0	53,2	17,3	41,1	5,2	13. 18. 29,0		B.
	84 Virginis.....	10,0	23,0	36,4	50,2	3,9	17,1	13. 35. 30,6		B.
	$\Sigma$ 1785. <i>np</i> .....	49,9	5,2	20,0	35,7	50,9	6,1	13. 42. 21,0		B.
	$\Sigma$ 1813.....	32,1	46,0	59,3	13,0	26,2	40,0	14. 5. 53,5		B.
	$\Sigma$ 1825.....	12,1	26,4	40,7	55,1	9,8	24,1	14. 9. 38,3		B.
	$\Sigma$ 1873. <i>p</i> .....	4,1	17,8	31,1	45,0	58,7	12,1	14. 37. 25,7		B.
	$\Sigma$ 1886.....	26,1	39,8	53,2	6,9	21,1	34,2	14. 43. 48,0		B.
	$\Sigma$ 1904. <i>sf</i> .....	19,0	32,3	45,1	59,0	12,7	26,1	14. 56. 39,6		B.
	Piazzi XIV. 279. <i>nf</i> ...	57,1	10,8	24,1	38,0	51,6	5,2	15. 0. 19,1		B.
	$\Sigma$ 1931. <i>np</i> .....	9,9	22,9	36,9	50,7	4,3	17,9	15. 11. 31,9		B.
	$\alpha$ Coronæ Borealis....	58,1	13,4	28,0	43,3	58,3	13,9	15. 28. 28,9		B.
	$\alpha$ Serpentis.....	31,7	45,2	58,9	12,3	26,0	39,4	15. 36. 53,1		B.
	48 Serpentis.....	21,0	34,9	48,6	3,0	16,9	30,7	16. 4. 45,0		B.
	$\sigma$ Coronæ Borealis....	40,8	57,2	13,3	29,8	45,7	2,3	16. 9. 18,4		B.
	$i$ Scorpii.....	35,1	50,0	5,1	19,7	34,4	49,1	16. 21. 4,0		B.
June 4	(g) $\Sigma$ 1873.....	2,3	16,1	29,2	43,0	56,7	10,1	14. 37. 23,8		B.
	$\Sigma$ 1886.....	24,1	37,7	51,1	5,1	18,6	32,0	14. 43. 46,0		B.
	$\Sigma$ 1904. <i>np</i> .....	16,3	29,9	43,2	57,0	11,0	23,9	14. 56. 37,3		B.
	Piazzi XIV. 279. <i>nf</i> ...	55,1	8,7	22,1	36,0	49,6	3,3	15. 0. 17,0		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

The Transit was levelled May 29, 2<sup>h</sup>, June 2, 3<sup>h</sup>, and June 4, 2<sup>h</sup>.May 26, 1<sup>h</sup>. The clock was put forward 1<sup>m</sup>.

- (a) Very unsteady. The temperature in the Transit Room was 69° at 5<sup>h</sup>. Change of clock-rate after putting forward the minute-hand.  
 (b) Very unsteady.

- (c) Extremely faint.  
 (d) Very unsteady. (Temp. 72° at 6<sup>h</sup>).  
 (e) Intervals not satisfactory.  
 (f) Great unsteadiness. (g) Cloudy.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. m. s.	s.	"	s.	s.	s.	s.	s.	A. m. s.	s.	
11. 40. 2,23		+ 3,45	2,37	59,25	56,88	1,42	56,18	11. 40. 59,24	- 2,50	$\beta$ Leonis.
13. 15. 55,27			55,31	52,40	56,89			13. 16. 52,48	- 2,83	Spica.
9. 19. 46,19			46,42	47,90	1,48	1,89	0,66	9. 19. 47,81	- 1,41	$\alpha$ Hydrae.
9. 59. 54,13			54,29	55,85	1,56			9. 59. 55,74	- 1,92	Regulus.
12. 48. 4,13			4,35					12. 48. 6,02	- 2,68	$\Sigma$ 1690.
13. 1. 46,20	45,90		51,34	52,43	1,09			1. 1. 53,03	+ 34,79	Polaris SP.
13. 41. 50,63			50,75					13. 41. 52,49	- 3,05	$\Sigma$ 1785. <i>np.</i>
14. 38. 3,91			4,01	5,78	1,77			14. 38. 5,82	- 3,14	$\epsilon$ Bootis.
14. 44. 18,33			18,52					14. 44. 20,34	- 3,48	39 Bootis. <i>sp.</i>
14. 51. 25,64			25,68					14. 51. 27,51	- 3,30	$\Sigma$ 1895. <i>sp.</i>
14. 58. 34,64			34,63					14. 58. 36,47	- 3,40	44 Bootis. <i>nf.</i>
15. 6. 56,92			57,15					15. 6. 59,00	- 3,24	* N.P.D. 97 <sup>o</sup> . 14 <sup>o</sup> .
15. 27. 58,76			58,85	0,61	1,76			15. 28. 0,73	- 3,17	$\alpha$ Coronae Bor.
15. 36. 27,62			27,80	29,63	1,83			15. 36. 29,69	- 3,19	$\alpha$ Serpentis.
15. 50. 57,96			58,25					15. 51. 0,16	- 3,56	$\delta$ Scorpii.
15. 58. 28,06			28,37					15. 58. 30,29	- 3,65	A.S.C. 1840.
1. 1. 56,69	56,89		51,82	52,72	0,90	1,96	2,65	1. 1. 54,55	+ 34,50	Polaris.
9. 59. 52,21			52,37	55,84	3,47					Regulus.
13. 1. 47,17	46,87		52,31	53,02	0,71			1. 1. 56,02	+ 34,20	Polaris SP.
9. 59. 44,67			44,83	55,80	10,97	1,89	10,12	9. 59. 55,74	- 1,87	Regulus.
15. 27. 49,36			49,45	0,62	11,17			15. 28. 0,79	- 3,18	$\alpha$ Coronae Bor.
15. 36. 18,09			18,27	29,66	11,39			15. 36. 29,62	- 3,22	$\alpha$ Serpentis.
15. 58. 18,96			19,27					15. 58. 30,65	- 3,70	A.S.C. 1840.
16. 3. 22,47			22,70					16. 3. 34,09	- 3,40	16 Scorpii.
16. 8. 35,19			35,26					16. 8. 46,65	- 3,19	$\alpha$ Coronae Bor.
16. 19. 32,15			32,46	43,94	11,48			16. 19. 43,86	- 3,78	Antares.
14. 8. 56,03			59,01			1,92	12,00	14. 9. 12,14	- 3,05	$\Sigma$ 1825.
14. 36. 48,73			48,87					14. 37. 2,04	- 3,10	$\Sigma$ 1873.
14. 44. 7,43			7,34					14. 44. 20,52	- 3,44	39 Bootis. <i>sp.</i>
15. 10. 54,21			54,34					15. 11. 7,56	- 3,17	$\Sigma$ 1931. <i>np.</i>
15. 27. 47,46			47,50	0,62	13,12					$\alpha$ Coronae Bor.
15. 36. 16,16			16,31	29,66	13,35					$\alpha$ Serpentis.
15. 58. 16,99			17,29					15. 58. 30,57	- 3,72	A.S.C. 1840.
16. 3. 20,60			20,81					16. 3. 34,09	- 3,40	16 Scorpii.
16. 8. 33,33			33,35					16. 8. 46,63	- 3,20	$\alpha$ Coronae Bor.
16. 20. 23,57			23,87					16. 20. 37,17	- 3,75	$\epsilon$ Scorpii.
13. 17. 17,39			17,24			1,96	13,89	13. 17. 34,21	- 3,49	$\zeta$ Ursae Majoris.
13. 34. 50,17			50,32					13. 35. 7,32	- 2,87	84 Virginis.
13. 41. 33,54			33,59					13. 41. 52,60	- 3,00	$\Sigma$ 1785. <i>np.</i>
14. 5. 12,87			13,02					14. 5. 30,06	- 3,00	$\Sigma$ 1813.
14. 8. 35,21			55,29					14. 9. 12,33	- 3,03	$\Sigma$ 1825.
14. 36. 44,93			45,07					14. 37. 2,15	- 3,10	$\Sigma$ 1873. <i>p.</i>
14. 43. 7,04			7,17					14. 43. 24,26	- 3,11	$\Sigma$ 1886.
14. 55. 59,12			59,27					14. 56. 16,38	- 3,15	$\Sigma$ 1904. <i>nf.</i>
14. 59. 57,99			58,12					14. 59. 55,23	- 3,15	Piaz xiv. 279. <i>nf.</i>
15. 10. 30,64			30,77					15. 11. 7,90	- 3,17	$\Sigma$ 1931. <i>np.</i>
15. 27. 43,41			43,45	0,62	17,17					$\alpha$ Coronae Bor.
15. 36. 12,37			12,52	29,67	17,15					$\alpha$ Serpentis.
16. 4. 2,87			2,97					16. 4. 20,17	- 3,21	48 Serpentis.
16. 8. 29,65			29,67					16. 8. 46,88	- 3,21	$\alpha$ Coronae Bor.
16. 20. 19,63			19,93					16. 20. 37,15	- 3,77	$\epsilon$ Scorpii.
14. 36. 43,03			43,17			1,97	17,86	14. 37. 2,23	- 3,09	$\Sigma$ 1873.
14. 43. 4,94			5,07					14. 43. 24,14	- 3,11	$\Sigma$ 1886.
14. 55. 56,94			57,09					14. 56. 16,17	- 3,15	$\Sigma$ 1904. <i>np.</i>
14. 59. 55,97			56,10					14. 59. 55,19	- 3,15	Piaz xiv. 279. <i>nf.</i>

Error of Collimation = + 1",15.

Level Error = - 1",48. From May 26 = - 1",40. From June 1 = - 2",16. From June 4 = - 2",12.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
June 4	$\Sigma$ 1931. <i>up</i> . . . . .	7,7	21,0	34,4	48,4	2,1	16,0	15. 11. 29,4		B.
	$\alpha$ Coronæ Borealis. . .	56,0	11,3	26,0	41,3	56,6	12,0	15. 28. 27,0		B.
	(a) $\alpha$ Serpentis . . . . .	29,4	43,1	57,0	10,4	24,0	37,7	15. 36. 51,2		B.
	48 Serpentis . . . . .	19,0	32,9	46,6	1,0	15,1	29,0	16. 4. 43,0		B.
	(b) $\iota$ Ophiuchi . . . . .	28,7	42,2	55,5	9,6	22,9	36,2	16. 37. 49,9		B.
	21 Ophiuchi . . . . .	24,9	38,6	52,0	5,6	19,1	32,2	16. 43. 46,0		B.
	(a) 30 Ophiuchi . . . . .	44,4	57,7	11,1	25,0	38,3	52,2	16. 53. 5,4		B.
June 10	(c) Regulus . . . . .	44,0	57,7	11,1	25,2	39,0	52,8	10. 0. 7,0		B.
	84 Virginis . . . . .	56,0	9,6	23,0	36,7	50,1	3,8	13. 35. 17,0		B.
	(b) $\Sigma$ 1785 . . . . .	36,3	51,6	6,4	22,0	37,0	52,3	13. 42. 7,7		B.
	$\Sigma$ 1825 . . . . .	58,7	13,0	27,1	41,8	56,0	10,5	14. 9. 25,0		B.
	(c) $\epsilon$ Bootis . . . . .	49,8	5,3	19,7	35,3	50,3	5,7	14. 38. 21,0		B.
	$\Sigma$ 1886 . . . . .	13,0	26,3	39,7	53,7	7,1	20,9	14. 43. 34,9		B.
	(d) $\Sigma$ 1904 . . . . .	5,9	19,0	32,1	45,7	59,0	13,0	14. 56. 26,4		B.
	Piazzi XIV. 279. <i>nf</i> . .	43,1	57,0	10,9	24,9	38,0	51,9	15. 0. 5,3		B.
	(e) * N.P.D. 97°. 14' . .	47,2	0,8	14,3	28,0	31,4	55,2	15. 7. 8,7		B.
	$\delta$ Serpentis. <i>nf</i> . . . . .	4,1	18,1	31,0	45,0	59,0	12,6	15. 27. 26,3		B.
	$\alpha$ Serpentis . . . . .	18,2	32,1	45,0	59,0	12,4	25,9	15. 36. 39,6		B.
	T Herculis . . . . .	40,7	55,2	9,9	24,5	39,2	54,1	16. 5. 8,9		B.
	$\iota$ Ophiuchi . . . . .	17,5	31,1	44,2	57,7	11,1	25,2	16. 37. 37,9		B.
	* N.P.D. 86°. 43' . . . .	10,0	23,3	36,3	50,0	3,6	16,9	16. 45. 30,9		B.
	$\alpha$ Ophiuchi . . . . .	24,5	38,2	51,9	6,1	19,7	33,3	17. 27. 47,1		B.
June 12	84 Virginis . . . . .	52,2	5,9	19,0	32,5	46,1	59,6	13. 35. 13,0		B.
	$\pi$ Bootis . . . . .	2,1	16,0	29,7	44,0	58,0	12,2	14. 33. 26,0		B.
	$\epsilon$ Bootis . . . . .	46,0	0,3	16,2	31,2	46,2	2,0	14. 38. 16,6		B.
	$\xi$ Bootis . . . . .	49,1	3,6	17,8	32,2	46,3	0,9	14. 44. 15,1		B.
	(f) $\Sigma$ 1896 . . . . .	9,8	29,1	47,7	7,3	25,3	44,8	14. 53. 3,7		B.
	(g) $\Sigma$ 1934 . . . . .	21,0	40,0	57,9	17,1	36,1	55,1	15. 12. 14,0		B.
	$\Sigma$ 1950 . . . . .	54,8	9,9	24,0	39,1	54,0	9,0	15. 23. 24,0		B.
	(h) $\delta$ Serpentis . . . . .	0,2	14,1	27,8	41,2	55,1	8,8	15. 27. 22,9		B.
	$\alpha$ Serpentis . . . . .	14,6	28,0	41,3	55,0	8,6	22,0	15. 36. 35,7		B.
	T Herculis . . . . .	36,8	51,3	5,9	20,9	35,4	50,1	16. 5. 5,1		B.
June 15	Polaris . . . . .	36.34,3	44.54,7	53.17,7	1.35,5	10. 5,4	18.20,2	1. 26. 42,8		B.
June 16	(a) Polaris SP. . . . .	36.10,8	44.31,3	52.44,5	.....	.....	.....	13. ....	+ 16. 44,18	B.
	(a) Polaris . . . . .	36.32,6	44.51,7	53.16,2	.....	.....	18.16,3	1. 26. 39,7	+ 1. 41,41	B.
June 17	(a) Polaris SP. . . . .	36.11,2	44.30,2	52.46,2	1.13,7	9.32,5	17.55,5	13. 26. 18,6		B.
June 21	$\pi$ Bootis . . . . .	44,1	58,0	12,0	26,0	40,3	54,1	14. 33. 8,4		B.
	$\epsilon$ Bootis . . . . .	28,0	43,1	58,2	13,4	28,9	44,0	14. 37. 59,1		B.
	$\xi$ Bootis . . . . .	31,3	45,8	0,1	14,5	28,9	43,0	14. 43. 57,1		B.
	$\Sigma$ 1934. <i>sp</i> . . . . .	2,9	21,9	40,9	59,5	18,6	36,9	15. 11. 56,0		B.
	(i) * N.P.D. 84°. 4' . . . .	24,1	37,2	50,9	4,6	18,0	31,3	15. 18. 45,0		B.
	$\Sigma$ 1950 . . . . .	36,3	51,2	6,3	20,9	36,4	51,1	15. 23. 6,1		B.
	$\delta$ Serpentis . . . . .	42,1	56,2	10,1	23,9	37,6	50,9	15. 27. 5,2		B.
	$\alpha$ Serpentis . . . . .	56,6	10,1	23,7	37,1	51,0	4,4	15. 36. 18,1		B.
	$\Sigma$ 1985 . . . . .	11,7	25,1	38,7	52,0	5,9	19,2	15. 47. 32,0		B.
June 22	$\pi$ Bootis . . . . .	41,9	56,0	10,1	24,0	38,3	52,0	14. 33. 6,2		B.
	$\epsilon$ Bootis . . . . .	25,8	41,0	56,1	11,6	27,0	42,0	14. 37. 57,0		B.
	$\xi$ Bootis . . . . .	29,2	43,9	58,0	12,2	26,7	40,8	14. 43. 55,0		B.
	(a) $\alpha$ Serpentis . . . . .	54,9	8,2	22,0	35,3	43,9	2,4	15. 36. 16,1		B.
	$\Sigma$ 1985 . . . . .	9,9	23,0	36,4	49,9	3,9	17,0	15. 47. 30,2		B.
	(k) $\alpha$ Ophiuchi . . . . .	1,1	14,9	28,8	42,2	56,4	10,0	17. 27. 24,0		B.
June 23	$\epsilon$ Bootis . . . . .	24,0	39,1	54,2	9,7	25,1	40,0	14. 37. 55,0		B.
	(a) $\alpha$ Serpentis . . . . .	53,5	6,9	20,2	33,5	47,2	0,9	15. 36. 14,2		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

From June 15 . . . . . WEST. . . . . GFEDCBA.

The Transit was reversed June 15, 6<sup>h</sup>.The Transit was levelled June 15, just before and after reversing, and June 25, 6<sup>h</sup>.

(a) Cloudy. (b) Confused. (c) Unsteadiness. (d) Appears to be  $\eta$ ; see June 3 and 4.  
 (e) Very faint and doubtful. (f) Noted as 'very faint.' It is probable therefore that the following star, which  
 is rather the brighter, was taken. (g) Very faint. (h) Hazy. (i) Mistaken for  $\Sigma$  1943. (k) Flaring.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at (h).	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	P.	h. m. s.	s.	
15. 10. 48.43		+ 3.45	48.56			1.97	17.86	15. 11. 7.67	- 3.17	$\Sigma$ 1931. <i>np.</i>
15. 27. 41.45			41.50	0.62	19.12					$\alpha$ Coronae Bor.
15. 36. 10.40			10.55	29.68	19.13					$\alpha$ Serpentis.
16. 4. 0.94			1.04					16. 4. 20.22	- 3.21	48 Serpentis.
16. 37. 9.29			9.46					16. 37. 28.68	- 3.35	$\gamma$ Ophiuchi.
16. 43. 5.49			5.66					16. 43. 24.89	- 3.35	21 Ophiuchi.
16. 52. 24.87			25.06					16. 52. 44.31	- 3.43	30 Ophiuchi.
9. 59. 25.26			25.39	55.71	30.32	1.95	29.33	9. 59. 55.53	- 1.78	Regulus.
13. 34. 36.60			36.77					13. 35. 7.20	- 2.84	84 Virginis.
13. 41. 21.90			21.97					13. 41. 52.41	- 2.95	$\Sigma$ 1785.
14. 8. 41.73			41.83					14. 9. 12.30	- 3.00	$\Sigma$ 1825.
14. 37. 35.30			35.37	5.74	30.37			14. 38. 5.89	- 3.10	$\epsilon$ Bootis.
14. 42. 53.66			53.81					14. 43. 24.33	- 3.10	$\Sigma$ 1886.
14. 53. 45.87			46.03					14. 56. 16.57	- 3.15	$\Sigma$ 1904.
14. 59. 24.44			24.59					14. 59. 55.14	- 3.15	Piaz. xiv. 279. <i>np.</i>
15. 6. 27.95			28.17					15. 6. 58.73	- 3.29	* N.P.D. 97°. 14'.
15. 26. 45.16			45.30					15. 27. 15.89	- 3.22	$\delta$ Serpentis. <i>np.</i>
15. 35. 58.89			59.05	29.70	30.65			15. 36. 29.65	- 3.26	$\alpha$ Serpentis.
16. 4. 24.64			24.72					16. 4. 55.36	- 3.22	T Herculia.
16. 36. 57.82			58.00					16. 37. 28.68	- 3.41	$\gamma$ Ophiuchi.
16. 44. 50.14			50.32					16. 45. 21.01	- 3.40	* N.P.D. 86°. 43'.
17. 27. 5.83			5.96	36.62	30.66			17. 27. 36.71	- 3.28	$\alpha$ Ophiuchi.
13. 34. 32.61			32.78			1.96	33.25	13. 35. 7.14	- 2.82	84 Virginis.
14. 32. 44.00			44.11					14. 33. 18.55	- 3.05	$\pi$ Bootis.
14. 37. 31.21			31.28	5.73	34.45					$\epsilon$ Bootis.
14. 43. 32.14			32.24					14. 44. 6.69	- 3.07	$\xi$ Bootis.
14. 52. 6.81			6.78					14. 52. 41.25	- 3.24	$\Sigma$ 1896.
15. 11. 17.32			17.29					15. 11. 51.78	- 3.26	$\Sigma$ 1934.
15. 22. 39.26			39.32					15. 23. 13.83	- 3.17	$\Sigma$ 1950.
15. 26. 41.44			41.58					15. 27. 16.09	- 3.21	$\delta$ Serpentis.
15. 35. 55.03			55.19	29.70	34.51					$\alpha$ Serpentis.
16. 4. 20.78			20.86					16. 4. 55.42	- 3.22	T Herculia.
1. 1. 38.66	30.05	+ 2.41	26.50	7.82	41.32	2.00	41.24	1. 2. 7.82	+ 19.40	Polaris.
13. 1. 15.05	21.37		25.17	8.28	43.11			1. 2. 7.49	+ 18.94	Polaris SP.
1. 1. 36.71	28.10		24.55	8.74	44.19		43.24	1. 2. 7.87	+ 18.48	Polaris.
13. 1. 12.56	20.88		24.68	9.20	44.52			1. 2. 9.00	+ 18.02	Polaris SP.
14. 32. 26.13			26.00			1.88	51.24	14. 33. 18.38	- 3.00	$\pi$ Bootis.
14. 37. 15.53			15.51	5.66	52.35					$\epsilon$ Bootis.
14. 43. 14.39			14.24					14. 44. 6.63	- 3.03	$\xi$ Bootis.
15. 10. 39.53			39.18					15. 11. 51.61	- 3.16	$\Sigma$ 1934. <i>sp.</i>
15. 18. 4.44			4.36					15. 18. 56.80	- 3.20	* N.P.D. 84°. 4'.
15. 22. 21.18			20.98					15. 23. 13.43	- 3.13	$\Sigma$ 1950.
15. 26. 23.71			23.61					15. 27. 16.06	- 3.21	$\delta$ Serpentis.
15. 35. 37.89			37.21	29.70	52.49					$\alpha$ Serpentis.
15. 46. 52.04			52.04					15. 47. 44.52	- 3.37	$\Sigma$ 1985.
14. 32. 24.07			23.94			1.86	53.13	14. 33. 18.19	- 3.00	$\pi$ Bootis.
14. 37. 11.50			11.30	5.65	54.35			14. 38. 5.56	- 3.01	$\epsilon$ Bootis.
14. 43. 12.23			12.10					14. 44. 6.37	- 3.03	$\xi$ Bootis.
15. 35. 33.40			33.33	29.70	54.57			15. 36. 29.67	- 3.26	$\alpha$ Serpentis.
15. 46. 50.05			50.01					15. 47. 44.36	- 3.38	$\Sigma$ 1985.
17. 26. 42.44			42.38	36.73	54.55			17. 27. 36.86	- 3.59	$\alpha$ Ophiuchi.
14. 37. 9.59			9.39	5.64	56.23	1.88	54.94			$\epsilon$ Bootis.
15. 35. 33.77			33.70	29.69	55.99					$\alpha$ Serpentis.

Error of Collimation = + 1".13. From June 15 = - 0".63 by the reversion on that day.

Level Error = - 8".12. From June 10 = - 1".88. From June 15 = - 3".41. From June 22 = - 5".25.

The Meridian Error given by the reversion of the Transit on June 15 = + 5".21, and by a bisection of Grantchester cross on June 9, it appeared to be very nearly the same. On this account the determination of May 26 is continued to June 15.

The two sets of three consecutive Transits of Polaris June 15—17, give for Meridian Error + 2".33 and + 2".29, the mean of which is used from June 15.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s. s.		
June 25	$\epsilon$ Bootis.....	19,9	35,1	50,3	5,6	21,0	35,8	14. 37. 51,0	- 2,26	B.
	$\Sigma$ 1950 .....	28,3	43,4	58,2	13,1	28,5	43,0	15. 22. 58,3		B.
	(a) $\alpha$ Serpentis.....	49,0	2,2	...	29,4	43,2	56,9	15. 36. 10,3		B.
	49 Serpentis. <i>sf.</i> .....	15,9	29,3	43,0	57,0	11,4	24,1	16. 5. 38,4		B.
June 26	$\epsilon$ Bootis.....	18,0	33,1	48,1	3,6	19,0	34,1	14. 37. 49,1	- 22,14	B.
	49 Serpentis. <i>np.</i> .....	12,9	27,1	41,0	54,9	9,1	22,3	16. 5. 36,0		B.
	* N.P.D. 86°. 43'.....	38,4	51,7	5,2	19,0	32,3	45,4	16. 44. 59,1		B.
	(b) 39 Ophiuchi.....	...	...	...	21,0	36,1	50,1	17. 8. 4,8		B.
	$\alpha$ Ophiuchi.....	53,1	7,0	20,7	34,2	48,4	2,1	17. 27. 16,0		B.
June 29	(a) $\epsilon$ Bootis.....	12,0	27,0	41,9	57,2	13,0	27,7	14. 38. 43,0	+ 18,02	B.
	(a) $\alpha$ Ophiuchi.....	47,1	1,2	14,7	28,7	42,3	55,9	17. 28. 10,2		B.
	(a) * N.P.D. 48°. 10'.....	12,3	30,1	48,0	6,2	24,3	...	17. 46. ....		B.
July 6	(a) $\epsilon$ Bootis.....	57,6	12,8	28,0	42,9	58,3	13,1	14. 38. 28,5		B.
July 8	$\epsilon$ Bootis.....	53,7	8,9	24,0	39,0	54,3	9,4	14. 38. 24,5		B.
	$\alpha$ Coronæ Borealis....	48,4	3,8	19,1	34,0	49,2	4,1	15. 28. 19,2		B.
	(c) $\Sigma$ 1985.....	37,1	50,4	4,2	18,0	31,1	44,8	15. 47. 58,4		B.
	49 Serpentis. <i>sf.</i> .....	49,1	3,0	17,0	30,7	44,9	58,7	16. 6. 12,3		B.
July 9	$\alpha$ Coronæ Borealis....	47,0	1,9	17,0	31,9	47,2	2,2	15. 28. 17,2		B.
	$\Sigma$ 2104.....	44,2	1,1	17,9	34,1	51,1	7,5	16. 43. 24,1		B.
	(a) $\Sigma$ 2178.....	32,6	49,0	5,1	21,8	38,3	54,9	17. 24. 11,0		B.
	$\alpha$ Ophiuchi.....	27,1	40,9	54,1	8,1	22,0	35,9	17. 27. 49,6		B.
July 13	(a) $\alpha$ Coronæ Borealis....	38,3	53,3	8,8	24,0	39,0	54,0	15. 28. 9,1		B.
July 14	$\Sigma$ 2104.....	34,3	51,1	7,7	24,1	41,0	57,1	16. 43. 14,1		B.
	(a) $\Sigma$ 2178.....	22,0	38,6	55,1	11,7	28,0	44,0	17. 24. 0,9		B.
	$\alpha$ Ophiuchi.....	16,7	30,1	44,1	58,0	11,9	25,7	17. 27. 39,1		B.
July 16	$\alpha$ Serpentis.....	6,0	19,6	33,0	47,0	0,7	14,0	15. 36. 27,4		B.
	$\Sigma$ 2052. <i>np.</i> .....	31,0	45,0	59,2	13,8	28,1	42,0	16. 21. 56,0		B.
	$\Sigma$ 2104.....	30,1	47,0	3,4	20,2	37,0	53,1	16. 43. 10,2		B.
	$\Sigma$ 2178.....	17,9	34,9	51,1	7,4	24,0	40,1	17. 23. 56,9		B.
	$\alpha$ Ophiuchi.....	13,0	26,0	40,1	53,8	8,1	21,4	17. 27. 35,0		B.
	(d) $\Sigma$ 2213.....	23,6	39,4	55,3	11,1	27,0	42,2	17. 38. 58,0		B.
July 17	$\epsilon$ Bootis.....	34,8	50,0	5,3	20,3	35,9	51,0	14. 38. 6,0	- 7,58	B.
	$\alpha$ Coronæ Borealis....	...	45,1	0,6	15,9	30,9	45,9	15. 28. 1,0		B.
	$\alpha$ Serpentis.....	4,1	17,7	31,0	44,9	58,6	12,0	15. 36. 25,3		B.
	$\Sigma$ 2052. <i>np.</i> .....	28,9	42,9	57,1	11,5	26,1	39,9	16. 21. 54,0		B.
	(e) $\Sigma$ 2087. <i>sf.</i> .....	29,0	43,1	58,2	13,1	27,9	42,0	16. 35. 57,1		B.
	(f) $\Sigma$ 2213.....	22,0	...	53,1	9,1	24,7	40,2	17. 38. 56,1	- 5,25	B.
July 19	(c) $\Sigma$ 2052. <i>np.</i> .....	...	39,2	...	8,0	22,1	36,0	16. 21. 50,1	- 11,38	B.
	(c) $\Sigma$ 2087. <i>np.</i> .....	24,1	38,9	53,7	8,4	23,5	37,9	16. 55. 53,0		B.
	(a) $\alpha$ Herculis.....	57,1	11,0	24,7	38,4	52,9	6,1	17. 7. 20,1		B.
	(a) Piazzi XVII. 94.....	55,9	10,4	24,9	38,3	52,3	6,1	17. 17. 20,0		B.
	(a) Ophiuchi.....	6,7	20,2	34,0	47,5	2,0	15,3	17. 27. 29,1		B.
July 26	(g) $\epsilon$ Bootis.....	16,5	31,9	47,0	2,1	17,6	32,8	14. 37. 47,7	- 20,34 - 6,74	B.
	(a) $\alpha$ Serpentis.....	...	...	...	26,9	40,3	54,0	15. 36. 7,1		B.
	(a) $\lambda$ Ophiuchi.....	...	27,1	40,7	54,0	8,0	21,2	16. 22. 34,3		B.
July 28	(a) $\alpha$ Coronæ Borealis....	7,7	23,0	38,0	52,9	8,4	23,3	15. 27. 38,5		B.
	(a) $\alpha$ Herculis.....	38,6	52,1	6,2	20,1	34,0	47,9	17. 7. 2,0		B.
	(a) 95 Herculis. <i>p.</i> .....	58,1	12,7	27,0	41,4	56,1	10,3	17. 54. 25,1		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

June 28, 22<sup>h</sup>. The clock was put forward 1<sup>m</sup>.The Transit was levelled July 9, 2<sup>h</sup>, July 17, 2<sup>h</sup>, and July 29, 2<sup>h</sup>.

(a) Cloudy. (b) Confused. (c) Very faint.

(d) Noted as the 'larger,' which is the following.

(e) The components are nearly equal.

(f) Very cloudy and faint. Apparently the following star; see July 29.

(g) Faint and hazy.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adop- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
14. 37. 5,53		+ 2,41	5,53	5,62	60,29	2,01	58,97			$\epsilon$ Bootis.
15. 22. 13,25			13,06					15. 23. 13,32	- 3,11	$\Sigma$ 1950.
15. 35. 29,57			29,50	29,60	60,19					$\alpha$ Serpentis.
16. 4. 57,02			56,90					16. 5. 57,22	- 3,28	49 Serpentis. <i>sf</i> .
14. 37. 3,57			3,87	5,62	62,25	2,00	60,97			$\epsilon$ Bootis.
16. 4. 54,76			54,64					16. 5. 56,95	- 3,28	49 Serpentis. <i>np</i> .
16. 44. 18,73			18,67					16. 45. 21,04	- 3,48	* N.P.D. 86°. 43'.
17. 7. 20,86			20,92					17. 8. 23,32	- 4,08	39 Ophiuchi.
17. 26. 34,50			34,40	36,76	62,36					$\alpha$ Ophiuchi.
14. 37. 57,40			57,20	5,59	8,39	2,01	7,00			$\epsilon$ Bootis.
17. 27. 28,59			28,49	36,77	8,28					$\alpha$ Ophiuchi.
17. 46. 6,20			5,89					17. 46. 14,38	- 3,23	* N.P.D. 48°. 10'.
14. 37. 43,03			42,80	5,51	22,71	1,95	21,52			$\epsilon$ Bootis.
14. 37. 39,12			38,89	5,48	26,59	1,90	25,46			$\epsilon$ Bootis.
15. 27. 33,97			33,75	0,46	26,71					$\alpha$ Coronæ Bor.
15. 47. 17,72			17,67					15. 47. 44,38	- 3,34	$\Sigma$ 1985.
16. 5. 30,81			30,67					16. 5. 57,40	- 3,24	49 Serpentis. <i>sf</i> .
15. 27. 32,05			31,83	0,45	28,62	1,89	27,35			$\alpha$ Coronæ Bor.
16. 42. 34,29			34,01					16. 43. 2,68	- 3,15	$\Sigma$ 2104.
17. 23. 21,81			21,53					17. 23. 50,25	- 3,23	$\Sigma$ 2178.
17. 27. 8,25			8,12	36,80	28,68					$\alpha$ Ophiuchi.
15. 27. 23,78			23,56	0,40	36,84	1,94	35,59			$\alpha$ Coronæ Bor.
16. 42. 24,20			23,96			1,98	37,50	16. 43. 2,84	- 3,10	$\Sigma$ 2104.
17. 23. 11,47			11,23					17. 23. 50,17	- 3,20	$\Sigma$ 2178.
17. 26. 57,95			57,85	36,79	38,94					$\alpha$ Ophiuchi.
15. 35. 46,82			46,75	29,57	42,82	2,08	41,47			$\alpha$ Serpentis.
16. 21. 15,58			15,44					16. 21. 56,33	- 3,19	$\Sigma$ 2052. <i>np</i> .
16. 42. 20,14			19,90					16. 43. 2,82	- 3,09	$\Sigma$ 2104.
17. 23. 7,47			7,23					17. 23. 50,21	- 3,19	$\Sigma$ 2178.
17. 26. 53,91			53,81	36,79	42,98					$\alpha$ Ophiuchi.
17. 38. 10,92			10,71					17. 38. 53,71	- 3,26	$\Sigma$ 2213.
14. 37. 20,47			20,27	5,37	45,10	2,07	43,63	14. 38. 5,16	- 2,73	$\epsilon$ Bootis.
15. 27. 15,65			15,46	0,36	44,90			15. 28. 0,43	- 2,92	$\alpha$ Coronæ Bor.
15. 35. 44,80			44,73	29,56	44,83			15. 36. 29,71	- 3,12	$\alpha$ Serpentis.
16. 21. 11,48			11,34					16. 21. 56,38	- 3,18	$\Sigma$ 2052. <i>np</i> .
16. 35. 12,91			12,73					16. 35. 57,79	- 3,17	$\Sigma$ 2087. <i>sf</i> .
17. 38. 8,95			8,74					17. 38. 53,89	- 3,25	$\Sigma$ 2213.
16. 21. 7,70			7,56			1,92	47,57	16. 21. 56,44	- 3,16	$\Sigma$ 2052. <i>np</i> .
16. 35. 8,50			8,32					16. 35. 57,22	- 3,15	$\Sigma$ 2087. <i>np</i> .
17. 6. 38,92			38,50	27,34	48,84					$\alpha$ Herculis.
17. 16. 38,28			38,16					17. 17. 27,11	- 3,38	Piazzi XVII. 94.
17. 26. 47,83			47,73	36,78	49,05					$\alpha$ Ophiuchi.
14. 37. 2,25			2,01	5,23	63,22	2,08	61,71			$\epsilon$ Bootis.
15. 35. 26,74			26,66	29,48	62,82					$\alpha$ Serpentis.
16. 21. 54,14			54,07					16. 22. 57,20	- 3,13	$\alpha$ Ophiuchi.
15. 26. 53,11			52,90	0,21	67,31	1,92	66,00			$\alpha$ Coronæ Bor.
17. 6. 20,12			19,99	27,28	67,29					$\alpha$ Herculis.
17. 53. 41,53			41,35					17. 54. 48,78	- 3,35	95 Herculis. <i>p</i> .

Error of Collimation = - 0",63.

Level Error = - 3",25 From July 6 = - 3",68. From July 14 = - 3",23. From July 26 = - 3",50.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
July 29	(a) $\beta$ Leonis.....	8,2	22,1	35,9	49,8	4,1	18,0	11.40.31,7		B.
	$\alpha$ Herculis.....	36,9	50,4	4,4	18,1	31,9	46,2	17.6.59,9		B.
	Piazzi XVII. 94.....	36,1	50,1	3,9	18,0	32,3	46,0	17.16.59,9		B.
	$\alpha$ Ophiuchi.....	46,2	0,0	13,6	27,5	41,8	55,1	17.27.9,0		B.
	$\Sigma$ 2213. <i>sf.</i> .....	57,8	13,3	29,0	44,7	0,7	16,0	17.38.32,0		B.
	95 Herculis. <i>nf.</i> .....	56,8	10,9	25,6	40,0	54,7	9,0	17.54.23,7		B.
	Piazzi XVII. 362. <i>nf.</i> ..	33,1	46,6	0,5	14,1	28,0	41,7	17.57.55,5		B.
	* N.P.D. 38°.23'.....	59,0	21,1	42,1	4,0	25,9	47,1	18.30.9,0		B.
July 31	$\alpha$ Herculis.....	32,3	46,2	0,1	14,0	28,1	42,0	17.6.55,7		B.
	$\Sigma$ 2147.....	25,2	41,0	56,1	11,7	27,1	42,1	17.10.58,0		B.
	Piazzi XVII. 94.....	32,1	46,9	0,2	14,2	28,2	42,0	17.16.56,0		B.
	$\alpha$ Ophiuchi.....	42,1	56,1	9,7	23,8	37,4	51,1	17.27.5,0		B.
	* N.P.D. 90°.26'..	36,1	49,9	3,1	16,3	29,9	43,0	18.28.56,9		B.
	$\epsilon$ Lyrae.....	2,1	19,2	37,0	54,1	12,1	29,0	18.38.46,2		B.
Aug. 4	$\epsilon$ Bootis.....	58,3	13,8	28,9	44,0	59,4	14,3	14.37.29,6		B.
Aug. 5	(b) $\delta$ Ophiuchi.....	.....	.....	49,4	3,0	16,6	30,0	16.6.43,2	- 13,49	B.
	(b) $\alpha$ Herculis.....	.....	.....	12,0	26,1	40,0	53,7	17.8.7,8	- 13,91	B.
	(b) $\Sigma$ 2147.....	37,0	52,1	8,0	23,1	38,9	54,0	17.12.9,4		B.
	(b) Piazzi XVII. 94.....	43,8	57,9	11,9	.....	.....	53,7	17.18.7,9	+ 2,83	B.
	(b) 95 Herculis.....	4,7	18,9	33,4	47,9	2,5	.....	17.55.30,9	+ 4,81	B.
Aug. 9	(a) $\epsilon$ Bootis.....	15,0	30,0	45,0	0,2	15,6	30,9	14.38.46,0		B.
	$\alpha$ Corone Borealis....	9,9	26,0	40,2	55,3	10,8	25,3	15.28.40,6		B.
	$\alpha$ Serpentis.....	43,8	57,4	11,1	24,5	38,0	51,9	15.37.5,1		B.
	(a) $\delta$ Ophiuchi.....	18,9	32,4	45,9	59,7	13,1	26,1	16.6.39,9		B.
	$\lambda$ Ophiuchi.....	12,0	25,3	38,9	52,2	6,1	19,2	16.23.32,8		B.
	$\alpha$ Herculis.....	40,9	54,5	8,8	22,3	36,9	50,2	17.8.4,0		B.
	(a) $\Sigma$ 2147.....	33,4	49,0	4,3	19,9	35,2	50,2	17.12.6,0		B.
	$\alpha$ Ophiuchi.....	50,6	4,2	18,0	31,9	46,0	59,3	17.28.13,2		B.
	95 Herculis. <i>nf.</i> .....	0,8	15,6	30,0	44,2	59,0	13,2	17.55.28,0		B.
	Piazzi XVII. 362. <i>nf.</i> ..	37,3	51,1	5,0	18,6	32,8	46,1	17.58.59,9		B.
	(c) * N.P.D. 90°.26'.....	.....	58,0	11,4	25,0	38,3	51,8	18.30.5,1	- 6,73	B.
	$\delta$ Lyrae. <i>np.</i> .....	12,5	30,1	47,3	5,1	22,3	39,9	18.39.57,1		B.
	(a) Castor.....	36,2	51,8	7,9	23,6	39,8	55,3	7.25.11,2		B.
	(a) Procyon.....	14,3	27,9	41,2	54,8	8,7	22,0	7.31.35,3		B.
	(a) Pollux.....	45,3	1,0	16,3	.....	47,0	1,8	7.36.17,1	- 0,01	B.
Aug. 10	(a) Polaris SP.....	37.31,2	45.53,2	54.3,8	.....	.....	19.18,5	13. ....	+ 8.22,79	B.
Aug. 11	(a) Procyon.....	.....	.....	40,0	53,3	7,5	20,8	7.31. ....	- 6,79	B.
Aug. 12	(a) $\lambda$ Ophiuchi.....	.....	23,0	36,6	50,1	3,9	17,1	16.23.30,4	- 6,74	B.
	$\beta$ Aquarii.....	27,2	41,0	54,4	7,9	21,9	35,0	21.23.48,4		B.
Aug. 13	(a) $\beta$ Aquarii.....	26,1	40,0	53,8	7,3	21,0	34,0	21.23.47,7		B.
	(a) $\alpha$ Aquarii.....	52,9	.....	.....	.....	45,6	59,3	21.58.13,1	- 10,11	B.
Aug. 14	(a) $\beta$ Leonis.....	.....	22,0	35,9	49,9	4,2	18,0	11.41.31,8	- 6,99	B.
	(a) Polaris SP.....	.....	.....	54.6,8	2.37,4	10.56,7	.....	13. ....	+ 1,87	B.
	(a) $\beta$ Aquarii.....	25,3	39,0	52,9	6,2	20,1	33,1	21.23.47,1		B.
	(a) $\alpha$ Aquarii.....	51,5	5,0	18,3	32,1	45,9	59,1	21.58.12,5		B.
Aug. 16	(d) $\delta$ Ophiuchi.....	.....	.....	40,4	54,0	7,7	20,8	16.6.34,1	- 13,49	B.
	(d) $\alpha$ Herculis.....	35,0	49,1	3,0	17,0	30,9	44,6	17.7.58,4		B.
	(d) $\alpha$ Ophiuchi.....	45,0	59,1	13,0	26,4	40,3	54,1	17.28.8,0		B.
	(d) Piazzi XVII. 362. <i>nf.</i> ..	32,0	45,9	59,4	13,2	27,1	40,8	17.58.54,2		B.
	$\beta$ Aquarii.....	24,0	38,0	51,2	5,0	19,0	31,9	21.23.45,2		B.
	$\alpha$ Aquarii.....	50,2	3,9	17,2	30,7	44,1	57,5	21.58.11,0		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

Aug. 4, 23<sup>h</sup>, I stopped Hardy and turned the screw through two intervals to increase the rate.The Transit was levelled Aug. 6, 2<sup>h</sup>, Aug. 12, 2<sup>h</sup>, and Aug. 18, 2<sup>h</sup>.

(a) Cloudy.

(b) Clouds with loud wind.

(c) A star nearly on the same parallel follows 21°.

(d) Cloudy. The three first observations of Aug. 16 are very discordant, owing probably to clouds.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
11. 39. 49.98		+ 2.41	49.84	58.64	68.80	1.90	67.85	11. 40. 58.61	- 1.89	$\delta$ Leonis.
17. 6. 18.26			18.13	27.28	69.15			17. 7. 27.33	- 3.29	$\alpha$ Herculis.
17. 16. 18.05			17.91					17. 17. 27.13	- 3.31	Piazzi XVII. 94.
17. 26. 27.60			27.48	36.73	69.25			17. 27. 36.71	- 3.39	$\alpha$ Ophiuchi.
17. 37. 44.79			44.56					17. 38. 53.80	- 3.16	$\Sigma$ 2213. <i>sf.</i>
17. 53. 40.10			39.92					17. 54. 49.18	- 3.33	95 Herculis. <i>nf.</i>
17. 57. 14.21			14.10					17. 58. 23.37	- 3.51	Piaz. xvii. 362. <i>nf.</i>
18. 29. 4.03			3.58					18. 30. 12.89	- 3.04	* N.P.D. 38°. 23'
17. 6. 14.06			13.93	27.26	73.33	2.03	71.82	17. 11. 24.64	- 3.08	$\alpha$ Herculis.
17. 10. 11.60			11.37					17. 17. 27.37	- 3.30	$\Sigma$ 2147.
17. 16. 14.23			14.09							Piazzi XVII. 94.
17. 26. 23.60			23.48	36.71	73.23					$\alpha$ Ophiuchi.
18. 28. 16.46			16.41					18. 29. 29.79	- 3.82	* N.P.D. 90°. 26'
18. 37. 54.24			53.95					18. 39. 7.34	- 3.20	$\epsilon$ Lyrae.
14. 36. 44.04		+ 2.74	43.87	5.09	81.22	2.04	79.98			$\epsilon$ Bootis.
16. 6. 2.95			2.88	4.50	1.62	0.86	0.85			$\delta$ Ophiuchi.
17. 7. 26.01			25.93	27.21	1.28					$\alpha$ Herculis.
17. 11. 23.21			23.04					17. 11. 24.50	- 3.02	$\Sigma$ 2147.
17. 17. 25.87			25.78					17. 17. 27.25	- 3.25	Piazzi XVII. 94.
17. 54. 47.86			47.73					17. 54. 49.22	- 3.28	95 Herculis.
14. 38. 0.38			0.21	5.01	4.80	0.86	4.28	14. 38. 5.01	- 2.37	$\epsilon$ Bootis.
15. 27. 55.30			55.14	0.01	4.87			15. 27. 59.97	- 2.57	$\alpha$ Corona Bor.
15. 36. 24.54			24.49	29.31	4.82			15. 36. 29.33	- 2.87	$\alpha$ Serpentis.
16. 5. 59.43			59.36	4.46	5.10			16. 6. 4.21	- 3.17	$\delta$ Ophiuchi.
16. 22. 52.35			52.33					16. 22. 57.20	- 2.99	$\lambda$ Ophiuchi.
17. 7. 22.51			22.43	27.17	4.74			17. 7. 27.32	- 3.18	$\alpha$ Herculis.
17. 11. 19.72			19.55					17. 11. 24.44	- 2.95	$\Sigma$ 2147.
17. 27. 31.88			31.81	36.63	4.82			17. 27. 36.72	- 3.29	$\alpha$ Ophiuchi.
17. 54. 44.40			44.27					17. 54. 49.19	- 3.24	95 Herculis. <i>nf.</i>
17. 58. 18.69			18.62					17. 58. 23.54	- 3.42	Piaz. xvii. 362. <i>nf.</i>
18. 29. 24.87			24.86					18. 29. 29.80	- 3.78	* N.P.D. 90°. 26'
18. 39. 4.90			4.67					18. 39. 9.62	- 3.10	$\delta$ Lyrae. <i>np.</i>
7. 24. 23.68			23.49	28.95	5.46	0.82	5.15	7. 24. 28.89	- 2.14	Castor.
7. 30. 54.89	54.72		54.85	0.14	5.29			7. 31. 0.26	- 1.64	Procyon.
7. 35. 31.41			31.24	36.72	5.48			7. 35. 36.65	- 2.01	Pollux
13. 2. 34.46	42.28		46.60	52.03	5.43					Polaris SP
7. 30. 53.61			53.56	0.18	6.62	0.89	6.46			Procyon.
16. 22. 50.11			50.07					16. 22. 57.14	- 2.95	$\lambda$ Ophiuchi.
21. 23. 7.97			7.98	15.35	7.37					$\beta$ Aquarii.
21. 23. 7.13		+ 1.82	7.09	15.36	8.27	0.93	7.56			$\beta$ Aquarii.
21. 57. 32.61			32.54	41.08	8.54					$\alpha$ Aquarii.
11. 40. 49.98	49.76		49.84	58.56	8.72	0.70	8.46	11. 40. 58.64	- 1.81	$\beta$ Leonis.
13. 2. 32.17	43.32		46.19	54.95	8.76					Polaris SP.
21. 23. 6.24			6.20	15.37	9.17			21. 23. 15.28	- 4.20	$\beta$ Aquarii.
21. 57. 32.05			31.98	41.10	9.12			21. 57. 41.08	- 4.07	$\alpha$ Aquarii.
16. 5. 53.91		+ 1.81	53.81	4.37	10.56	0.64	9.90	16. 6. 4.14	- 3.08	$\delta$ Ophiuchi.
17. 7. 16.86			16.75	27.07	10.32			17. 7. 27.11	- 3.08	$\alpha$ Herculis.
17. 27. 36.36			26.46	36.55	10.09			17. 27. 36.83	- 3.21	$\alpha$ Ophiuchi.
17. 58. 13.23			13.13					17. 58. 23.51	- 3.35	Piaz. xvii. 362. <i>nf.</i>
21. 23. 4.90			4.87	15.38	10.51			21. 23. 15.34	- 4.21	$\beta$ Aquarii.
21. 57. 30.65			30.60	41.12	10.52			21. 57. 41.09	- 4.09	$\alpha$ Aquarii.

Error of Collimation = - 0".63.

Level Error = - 3".50. From Aug. 4 = - 2".89. From Aug. 10 = - 3".15. From Aug. 16 = - 2".69.

The Meridian Error from Aug. 4 by Procyon Aug. 9 and Polaris SP Aug. 10, allowing 0".15 for rate of clock.

... from Aug. 13 by  $\beta$  Leonis and Polaris SP Aug. 14, allowing 0".04 for the rate of clock.... from Aug. 16 by  $\delta$  Ursæ Minoris,  $\gamma$  Ursæ Minoris SP and  $\delta$  Ursæ Minoris Aug. 19 and 20.



Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Aug. 17	(a) $\delta$ Ursæ Minoris .....	.....	.....	19.39,8	23.24,7	27.15,5	30.57,2	18.34.44,6	- 3.46,77	B.
	(a) $\alpha$ Aquilæ .....	13,8	27,0	41,1	54,2	8,3	21,5	19.43.35,0		B.
	(a) $\beta$ Aquilæ .....	42,2	56,0	9,7	.....	.....	.....	19.47. ....	+ 27,07	B.
Aug. 18	(a) Polaris SP. ....	.....	.....	.....	.....	10.56,8	19.21,6	13.27.46,7	- 16.45,17	B.
	$\delta$ Ursæ Minoris .....	12.4,2	15.50,8	19.38,3	23.24,2	27.15,8	30.57,7	18.34.43,7		B.
	$\alpha$ Aquilæ .....	13,1	26,8	40,3	54,0	7,7	21,1	19.43.34,9		B.
	$\beta$ Aquilæ .....	41,9	55,7	9,3	22,7	36,1	50,0	19.48.3,2		B.
	$\beta$ Aquarii .....	23,0	36,7	50,2	3,9	18,0	30,8	21.23.44,2		B.
	$\alpha$ Aquarii .....	49,1	2,7	16,7	29,8	43,0	56,2	21.58.9,9		B.
Aug. 19	Polaris SP. ....	37.26,8	45.54,4	54.8,3	2.38,4	10.57,8	19.20,4	13.27.43,5		B.
	$\delta$ Ursæ Minoris .....	.....	15.51,7	19.38,3	23.23,8	27.13,7	30.55,8	18.34.44,3	- 1.53,37	B.
	$\alpha$ Aquilæ .....	13,3	26,3	39,8	53,5	7,2	20,9	19.43.34,1		B.
	$\beta$ Aquilæ .....	41,6	55,1	8,6	22,0	36,0	49,1	19.48.2,8		B.
	$\beta$ Aquarii .....	22,9	36,1	50,1	3,3	17,1	30,3	21.23.43,9		B.
	$\alpha$ Aquarii .....	48,8	2,2	15,9	29,0	42,7	56,1	21.58.9,5		B.
	(b) $\delta$ Ursæ Minoris SP. ....	.....	15.40,7	19.24,2	.....	27.3,6	.....	6.34.33,5	- 0.56,19	B.
Aug. 20	(c) Polaris SP. ....	37.33,4	.....	54.7,6	2.40,4	11.2,2	19.21,4	13.27.47,6	- 2.47,00	B.
	$\delta$ Ursæ Minoris .....	12.2,3	15.49,2	19.35,0	23.21,4	27.11,6	30.54,7	18.34.41,3		B.
	$\alpha$ Aquilæ .....	12,2	26,0	39,5	53,1	7,0	20,1	19.43.34,0		B.
	$\beta$ Aquilæ .....	41,0	54,7	8,2	21,9	35,3	48,9	19.48.2,2		B.
	$\beta$ Aquarii .....	22,1	36,0	49,3	3,0	16,9	30,1	21.23.43,3		B.
	$\alpha$ Aquarii .....	48,2	1,9	15,1	28,7	42,1	55,4	21.58.8,8		B.
Aug. 21	Polaris SP. ....	37.30,3	45.53,7	54.7,2	2.41,3	10.58,5	19.21,3	13. ....	+ 4.11,41	B.
	$\delta$ Ursæ Minoris .....	12.2,6	15.48,8	19.36,2	23.22,5	27.12,6	30.54,7	18.34.41,3		B.
	$\alpha$ Aquilæ .....	11,7	25,1	39,1	52,8	6,3	19,6	19.43.33,3		B.
	$\beta$ Aquilæ .....	40,5	54,1	7,9	21,4	35,0	48,1	19.48.1,8		B.
	$\beta$ Aquarii .....	21,8	35,3	49,1	2,8	16,3	29,3	21.23.43,1		B.
	$\alpha$ Aquarii .....	47,9	1,3	14,9	28,2	42,0	55,1	21.58.8,9		B.
Aug. 23	$\delta$ Ursæ Minoris .....	12.2,5	15.47,8	19.36,2	23.21,7	27.11,8	30.53,7	18.34.40,8		B.
	(b) $\delta$ Ursæ Minoris SP. ....	.....	.....	19.17,8	23.12,5	26.58,6	30.45,8	6.34.31,7	- 3.46,30	B.
Aug. 24	(c) Polaris SP. ....	37.29,3	45.52,7	54.8,3	2.37,6	10.58,4	19.21,2	13.27.45,5		B.
	$\delta$ Ursæ Minoris .....	12.0,7	15.47,8	19.34,2	23.21,3	27.10,6	30.52,8	18.34.40,5		B.
	$\alpha$ Aquilæ .....	10,2	24,0	37,5	51,1	5,1	18,0	19.43.31,9		B.
	$\beta$ Aquilæ .....	39,1	52,7	6,4	19,9	33,3	47,1	19.48.0,4		B.
	(d) $\beta$ Aquarii .....	20,9	34,1	47,9	1,2	15,0	28,1	21.23.41,8		B.
	$\alpha$ Aquarii .....	46,1	59,7	13,2	26,9	40,6	53,5	21.58.7,1		B.
Aug. 26	$\alpha$ Aquilæ .....	9,4	23,2	36,6	50,2	4,0	17,5	19.43.31,0		C.
	$\beta$ Aquilæ .....	38,3	51,8	5,3	18,9	32,7	46,0	19.47.59,5		C.
	$\alpha$ Aquarii .....	45,7	59,2	12,6	26,1	39,7	52,9	21.58.6,4		C.
	Pallas .....	53,4	6,7	20,2	33,7	47,2	0,5	22.44.14,0		C.
Aug. 27	$\alpha$ Aquilæ .....	9,0	22,7	36,2	49,8	3,5	16,9	19.43.30,4		G.
	$\beta$ Aquarii .....	19,0	32,4	46,1	59,8	13,5	26,9	21.23.40,3		G.
	$\alpha$ Aquarii .....	45,1	58,3	12,0	25,4	39,0	52,2	21.58.5,7		G.
	Pallas .....	8,1	21,3	34,8	48,6	2,1	15,2	22.43.29,1		G.
Aug. 30	$\alpha$ Aquilæ .....	7,3	20,9	34,4	48,0	2,0	15,2	19.43.28,9		G.
	$\beta$ Aquilæ .....	36,2	49,7	3,1	16,8	30,7	43,8	19.47.57,2		G.
Sept. 1	(e) $\alpha$ Aquilæ .....	6,1	19,9	33,2	47,0	0,9	14,1	19.43.27,9		G.
	$\beta$ Aquilæ .....	35,2	48,3	2,2	15,8	29,4	42,8	19.47.56,4		G.
Sept. 2	$\alpha$ Aquarii .....	41,4	55,0	8,4	21,9	35,2	48,8	21.58.2,2		G.
	Pallas .....	33,8	47,3	0,5	14,1	27,7	40,9	22.38.54,5		C.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

The Transit was levelled Aug. 22, 23<sup>h</sup>, and Sept. 6, 23<sup>h</sup>.

(a) Cloudy.

(b) Hazy and extremely faint.

(c) Very unsteady.

(d) Haze and unsteadiness.

(e) Great fall of temperature on Sept. 1. See Circle observations.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. S.	A.	"	A.	A.	A.	A.	A.	A. M. S.	A.	
18. 23. 25.59 19. 42. 54.41 19. 47. 23.04		+ 1.81	21.16 54.33 22.06	32.44 5.34 34.04	11.28 11.01 11.08	0.52	10.62	18. 23. 32.18	+ 3.48	$\delta$ Ursæ Minoris. $\alpha$ Aquilæ. $\beta$ Aquilæ.
13. 2. 36.53 18. 23. 24.96 19. 42. 53.99 19. 47. 22.70 21. 23. 3.83 21. 57. 29.63			46.32 20.53 53.91 22.62 3.81 29.58	57.18 32.13 5.33 34.03 15.39 41.14	10.86 11.60 11.42 11.41 11.58 11.56	0.45	11.10	1. 2. 57.66 18. 23. 31.97 19. 43. 5.38 19. 47. 34.09 21. 23. 15.31 21. 57. 41.09	- 29.96 + 3.79 - 3.79 - 3.83 - 4.22 - 4.11	Polaris SP. $\delta$ Ursæ Minoris. $\alpha$ Aquilæ. $\beta$ Aquilæ. $\beta$ Aquarii. $\alpha$ Aquarii.
13. 2. 35.66 18. 23. 24.56 19. 42. 53.58 19. 47. 22.17 21. 23. 3.39 21. 57. 29.17 6. 23. 14.51	21.28		45.45 20.13 53.50 22.09 3.36 29.12 18.71	57.77 31.82 5.33 34.03 15.40 41.15 31.67	12.32 11.69 11.83 11.94 12.04 12.03 12.96	0.48	11.55	1. 2. 57.26 18. 23. 32.05 19. 43. 5.44 19. 47. 34.04 21. 23. 15.34 21. 57. 41.11 18. 23. 30.88	- 30.55 + 4.10 - 3.79 - 3.83 - 4.23 - 4.12 + 4.25	Polaris SP. $\delta$ Ursæ Minoris. $\alpha$ Aquilæ. $\beta$ Aquilæ. $\beta$ Aquarii. $\alpha$ Aquarii. $\delta$ Ursæ Min. SP.
13. 2. 48.33 18. 23. 22.21 19. 42. 53.13 19. 47. 21.74 21. 23. 2.96 21. 57. 28.60	18.42 53.02		49.28 17.27 5.32 21.64 2.91 28.53	58.40 31.50 12.30 34.02 15.40 41.16	9.12 14.23 12.38 12.49 12.63			1. 3. 1.58 18. 23. 29.67 19. 43. 5.45 19. 47. 34.07 21. 23. 15.37 21. 57. 41.00	- 31.18 + 4.42 - 3.78 - 3.82 - 4.23 - 4.13	Polaris SP. $\delta$ Ursæ Minoris. $\alpha$ Aquilæ. $\beta$ Aquilæ. $\beta$ Aquarii. $\alpha$ Aquarii.
13. 2. 36.79 18. 23. 22.67 19. 42. 52.55 19. 47. 21.25 21. 23. 2.53 21. 57. 28.33			47.64 17.73 52.44 21.15 2.48 28.26	59.06 31.17 5.32 34.02 15.41 41.16	11.42 13.44 12.88 12.87 12.93 12.90	0.45	12.51	1. 3. 0.39 18. 23. 30.58 19. 43. 5.32 19. 47. 34.03 21. 23. 15.39 21. 57. 41.18	- 31.84 + 4.75 - 3.78 - 3.82 - 4.24 - 4.13	Polaris SP. $\delta$ Ursæ Minoris. $\alpha$ Aquilæ. $\beta$ Aquilæ. $\beta$ Aquarii. $\alpha$ Aquarii.
18. 23. 22.07 6. 23. 10.98	18.28 14.50	+ 2.41	16.73 16.28	30.45 30.27	13.70 13.99	0.52	13.32 13.84	18. 23. 30.47 18. 23. 30.26	+ 5.47 + 5.65	$\delta$ Ursæ Minoris. $\delta$ Ursæ Min. SP.
13. 2. 36.14 18. 23. 21.13 19. 42. 51.11 19. 47. 19.85 21. 23. 1.28 21. 57. 26.73	17.34		47.94 15.81 51.02 19.78 1.27 26.69	1.12 30.08 5.30 34.00 15.42 41.18	13.18 14.27 14.28 14.22 14.15 14.49			1. 3. 2.06 18. 23. 30.05 19. 43. 5.29 19. 47. 34.05 21. 23. 15.57 21. 57. 41.01	- 33.90 + 5.84 - 3.76 - 3.80 - 4.25 - 4.15	Polaris SP. $\delta$ Ursæ Minoris. $\alpha$ Aquilæ. $\beta$ Aquilæ. $\beta$ Aquarii. $\alpha$ Aquarii.
19. 42. 50.27 19. 47. 18.93 21. 57. 26.09 22. 43. 33.67			50.18 18.86 26.05 33.60	5.29 33.99 41.19	15.11 15.13 15.14	0.57	14.64	19. 43. 5.29 19. 47. 33.97 21. 57. 41.21 22. 43. 48.78	- 3.75 - 3.79 - 4.16	$\alpha$ Aquilæ. $\beta$ Aquilæ. $\alpha$ Aquarii. Pallas.
19. 42. 49.79 21. 23. 39.72 21. 57. 25.29 22. 42. 48.46			49.70 59.71 25.33 48.39	5.28 15.42 41.20	15.58 15.71 15.83	0.56	15.22	19. 43. 5.38 21. 23. 15.43 21. 57. 41.08 22. 43. 4.14	- 3.74 - 4.25 - 4.17	$\alpha$ Aquilæ. $\beta$ Aquarii. $\alpha$ Aquarii. Pallas.
19. 42. 48.10 19. 47. 16.79			48.00 16.71	5.26 33.96	17.26 17.25	0.53	16.82			$\alpha$ Aquilæ. $\beta$ Aquilæ.
19. 42. 47.02 19. 47. 15.73			46.92 15.65	5.24 33.94	18.32 18.29	0.82	17.64			$\alpha$ Aquilæ. $\beta$ Aquilæ.
21. 57. 21.84 22. 38. 14.11			21.79 14.04	41.22	19.43	0.95	18.50	22. 38. 33.44		$\alpha$ Aquarii. Pallas.

Error of Collimation = - 0".63.

Level Error = - 2".59. From Aug. 20 = - 3".24. From Aug. 30 = - 3".41.

The Meridian Error from Aug. 23 by  $\delta$  Ursæ Minoris,  $\delta$  Ursæ Minoris SP, and  $\delta$  Ursæ Minoris Aug. 23 and 24.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.		
Sept. 2	$\alpha$ Pegasi .....	53,9	7,9	21,6	35,4	49,7	3,1	22.57.17,1		G.
Sept. 6	$\beta$ Aquarii.....	12,0	25,4	39,0	52,6	6,3	19,6	21.23.33,1		G.
	$\alpha$ Aquarii.....	38,1	51,4	5,0	18,4	32,0	45,3	21.57.58,9		G.
	(a) Pallas.....	29,0	42,3	55,9	9,3	22,9	.....	22.35.....	+ 13,44	G.
	$\alpha$ Pegasi .....	50,4	4,3	18,2	32,1	46,2	59,9	22.57.13,8		G.
Sept. 8	$\beta$ Aquarii.....	10,2	23,7	37,1	50,6	4,4	17,6	21.23.31,2		G.
	$\alpha$ Aquarii.....	36,1	49,7	3,1	16,5	30,1	43,2	21.57.56,8		G.
	Pallas .....	57,8	11,1	24,1	37,8	51,3	4,4	22.34.17,9		G.
	$\alpha$ Pegasi.....	48,5	2,5	16,3	30,1	44,3	58,0	22.57.11,8		G.
Sept. 9	Piazzi XXIII. 276. ....	15,2	30,3	45,5	0,7	16,5	31,4	23.58.46,5		C.
	$\alpha$ Andromedæ.....	.....	.....	.....	49,3	4,7	19,6	0.0.34,9	- 22,91	C.
	Polaris.....	37.42,6	46.5,5	54.30,3	2.51,2	11.22,0	19.34,6	1.27.59,0		C.
	$\alpha$ Arietis .....	8,1	22,6	37,2	51,7	6,6	21,0	1.58.35,4		C.
	$\alpha$ Ceti .....	55,9	9,2	22,9	36,1	50,0	3,2	2.54.16,8		G.
Sept. 10	Polaris SP.....	37.26,0	45.48,5	54.5,8	2.37,8	10.55,2	19.22,0	13.27.42,4		G.
	(b) Polaris SP. M.....	0.29,5	1.12,4	1.54,2	2.37,8	3.20,3	4.2,0	13.4.45,5	- 1,46	G.
	$\beta$ Aquarii.....	8,1	21,4	35,1	48,8	2,3	15,4	21.23.29,2		G.
	(c) Pallas .....	26,5	39,8	53,2	6,5	20,4	33,3	22.32.46,9		C.
	$\alpha$ Pegasi.....	46,4	0,6	14,1	28,1	42,1	56,0	22.57.10,0		G.
Sept. 11	$\alpha$ Orionis.....	28,6	42,1	55,8	9,1	23,0	36,2	5.46.50,0		G.
	Castor.....	.....	.....	46,2	2,2	18,3	33,9	7.24.49,9	- 15,93	G.
	Procyon.....	52,8	6,1	19,7	33,2	47,0	0,2	7.31.13,8		G.
	Pollux .....	24,1	39,3	54,6	10,0	25,3	40,5	7.35.55,7		G.
Sept. 13	(d) Polaris SP.....	.....	45.50,8	54.5,0	2.35,5	10.55,4	19.20,2	13.27.43,6	- 4.11,33	G.
	(d) Polaris SP. M.....	0.28,5	1.13,8	1.53,0	2.35,5	3.21,0	4.2,6	13.4.43,7	- 1,46	G.
	$\alpha$ Aquarii.....	32,1	45,7	59,0	12,5	26,1	39,6	21.57.53,0		G.
	Pallas .....	14,0	27,1	40,9	54,1	8,0	.....	22.30.....	+ 13,43	G.
	$\alpha$ Pegasi.....	44,7	58,5	12,2	26,1	40,2	54,0	22.57.7,9		G.
	$\alpha$ Andromedæ.....	0,8	15,9	31,2	46,3	2,0	16,8	0.0.32,1		G.
	(e) Polaris M.....	0.38,8	1.21,0	2.3,2	2.46,6	3.29,2	4.10,0	1.4.53,2	+ 1,46	G.
Sept. 14	(f) Polaris SP.....	37.27,0	45.51,0	54.4,8	2.35,4	10.55,2	19.20,5	13.27.45,2		G.
	(e) Polaris SP. M.....	0.28,2	1.10,6	1.52,2	2.35,4	3.17,9	3.57,3	13.4.43,0	- 1,46	G.
Sept. 16	$\beta$ Aquarii.....	4,7	18,0	31,5	45,1	58,9	12,2	21.23.25,7		G.
	$\alpha$ Aquarii.....	30,6	43,9	57,5	10,8	24,4	37,5	21.57.51,2		G.
	Pallas .....	6,1	19,3	33,0	46,3	0,0	.....	22.28.....	+ 13,43	G.
	$\alpha$ Pegasi.....	.....	56,9	10,7	24,4	38,8	52,4	22.57.6,1	- 6,95	G.
Sept. 17	(g) * N.P.D. 62°.56'. ....	52,1	7,1	22,0	37,1	52,9	7,8	19.20.22,7		B.
	$\Sigma$ 2556.....	24,9	39,1	53,9	8,2	22,9	36,9	19.32.51,9		B.
	$\Sigma$ 2576.....	.....	.....	46,4	2,8	19,0	34,7	19.39.51,0	- 16,10	B.
	(h) * N.P.D. 67°.59'. ....	41,2	55,0	9,9	24,2	38,9	53,1	19.48.7,9		B.
	$\psi$ Cygni.....	56,2	18,2	40,1	2,1	24,2	45,9	19.52.7,4		B.
	$\Sigma$ 2616.....	15,1	28,9	42,8	56,9	11,0	24,1	19.55.37,9		B.
	Piazzi XX. 26.....	20,7	34,0	47,9	1,2	14,8	28,0	20.4.41,0		B.
	$\Sigma$ 2653.....	.....	54,0	8,9	22,9	38,1	52,0	20.7.7,1	- 7,35	B.
	$\Sigma$ 2659.....	.....	.....	33,0	51,0	10,2	28,1	20.10.46,9	- 18,43	B.
	Piazzi XX. 177. p. ....	27,6	41,4	55,1	9,0	23,1	36,0	20.23.49,9		B.
	(i) $\Sigma$ 2725.....	39,0	53,1	7,2	21,0	35,0	49,0	20.39.3,1		B.
	(k) $\Sigma$ 2747.....	50,9	8,0	24,4	41,5	58,8	15,2	20.56.32,0		B.
	$\beta$ Aquarii.....	3,4	16,9	30,4	44,1	57,6	11,1	21.23.24,3		B.
	$\alpha$ Aquarii.....	29,3	43,1	56,0	10,0	23,1	36,4	21.57.50,0		B.
	Pallas .....	24,1	37,9	51,1	4,2	18,0	31,2	22.27.44,2		B.
	$\alpha$ Pegasi.....	41,3	56,1	9,4	23,2	37,1	51,2	22.57.5,1		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.

The Transit was levelled Sept. 6, 23<sup>h</sup>, and Sept. 13, 2<sup>h</sup>.

(a) Faint. (b) Taken with the Micrometer-wire at intervals of one, two, and three revolutions on each side of wire IV. Correction to mean of wires = - 1'.46. This was thought a better observation than the other. (c) Confused at the three last wires. (d) Extremely unsteady and difficult. Taken as on Sept. 10. (e) Very good. Taken as on Sept. 10. (f) Often cloudy and doubtful. (g) Very faint. (h) Mistaken for  $\Sigma$  2600. (i) 'South taken.' The angle of position is 358°. (k) The components are 5" apart and nearly on the same parallel. This appears to be the following: see Sept. 18.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	s.	
22. 56. 35.53		+ 2.41	35.41	54.77	19.36	0.95	18.50			$\alpha$ Pegasi.
21. 22. 52.57		+ 1.52	52.50	15.41	22.91	0.93	22.01	21. 23. 15.34	- 4.24	$\beta$ Aquarii.
21. 57. 18.45			18.35	41.23	22.88			21. 57. 41.21	- 4.20	$\alpha$ Aquarii.
22. 35. 9.32			9.21					22. 35. 32.10		Pallas.
22. 56. 32.13			31.98	54.80	22.82			22. 56. 54.88	- 4.06	$\alpha$ Pegasi.
21. 22. 50.68			50.61	15.41	24.80	0.98	23.89	21. 23. 15.37	- 4.24	$\beta$ Aquarii.
21. 57. 16.50			16.40	41.23	24.83			21. 57. 41.19	- 4.20	$\alpha$ Aquarii.
22. 33. 37.77			37.66					22. 34. 2.47		Pallas.
22. 56. 30.21			30.06	54.81	24.75			22. 56. 54.89	- 4.07	$\alpha$ Pegasi.
23. 58. 0.87			0.72					23. 58. 26.58	- 4.14	Piaz. XXIII. 276.
23. 59. 49.21			49.06	15.02	25.96	0.99	25.86	0. 0. 14.92	- 4.14	$\alpha$ Andromedæ.
1. 2. 52.17	45.92		43.68	9.61	25.93			1. 3. 9.58	- 42.89	Polaris.
1. 57. 51.80			51.66	17.51	25.85			1. 58. 17.60	- 4.08	$\alpha$ Arietis.
2. 53. 36.50			36.24	2.23	25.99			2. 54. 2.22	- 3.69	$\alpha$ Ceti.
13. 2. 33.96	40.01		42.41	9.83	27.42	0.88	25.96	1. 3. 8.85	- 42.61	Polaris SP.
13. 2. 35.93	41.98		44.38	9.83	25.45			1. 3. 10.82	- 42.61	Polaris SP.
21. 22. 48.62			48.59	15.40	26.81					$\beta$ Aquarii.
22. 32. 6.66			6.61					22. 32. 33.40		Pallas.
22. 56. 28.19			28.10	54.82	26.72					$\alpha$ Pegasi.
5. 46. 9.26		+ 0.32	9.13	36.91	27.78	0.69	27.63	5. 46. 36.93	- 2.98	$\alpha$ Orionis.
7. 24. 2.17			1.96	29.87	27.91			7. 24. 29.80	- 3.06	Castor.
7. 30. 33.26			33.14	0.89	27.75			7. 31. 0.99	- 2.39	Procyon.
7. 35. 9.92			9.72	37.58	27.86			7. 35. 37.57	- 2.87	Pollux.
13. 2. 33.75	39.80		40.30	10.80	30.50	0.56	28.23	1. 3. 8.83	- 43.58	Polaris SP.
13. 2. 35.41	41.46		41.96	10.80	28.84			1. 3. 10.49	- 43.58	Polaris SP.
21. 57. 12.37			12.46	41.21	28.75			21. 57. 41.20	- 4.18	$\alpha$ Aquarii.
22. 29. 54.25			54.14					22. 30. 22.89		Pallas.
22. 56. 26.23			26.08	54.83	28.75			22. 56. 54.84	- 4.09	$\alpha$ Pegasi.
23. 59. 46.45			46.26	15.06	28.80		28.79	0. 0. 15.05	- 4.18	$\alpha$ Andromedæ.
1. 2. 47.46	41.21		40.74	10.93	30.19			1. 3. 9.55	- 43.71	Polaris.
13. 2. 34.16	40.21		40.71	11.08	30.37			1. 3. 9.80	- 43.86	Polaris SP.
13. 2. 35.48	39.53		40.03	11.08	31.05			1. 3. 9.12	- 43.86	Polaris SP.
21. 22. 45.16			45.06	15.37	30.31	0.79	29.66	21. 23. 15.42	- 4.20	$\beta$ Aquarii.
21. 57. 10.84			10.73	41.21	30.48			21. 57. 41.11	- 4.18	$\alpha$ Aquarii.
22. 27. 46.37			46.26					22. 28. 16.66		Pallas.
22. 56. 24.60			24.45	54.83	30.38			22. 56. 54.86	- 4.09	$\alpha$ Pegasi.
19. 19. 37.39			37.20			0.83	30.82	19. 20. 8.69	- 2.93	* N.P.D. 62°. 56'
19. 32. 8.26			8.08					19. 32. 39.57	- 3.12	$\Sigma$ 2556.
19. 39. 2.68			2.47					19. 39. 33.97	- 2.89	$\Sigma$ 2576.
19. 47. 24.31			24.13					19. 47. 55.63	- 3.20	* N.P.D. 67°. 59'
19. 51. 2.01			1.70					19. 51. 33.21	- 2.41	$\psi$ Cygni.
19. 54. 56.67			56.52					19. 55. 28.03	- 3.42	$\Sigma$ 2616.
20. 4. 1.06			0.97					20. 4. 32.48	- 3.77	Piazzi XX. 26.
20. 6. 23.13			22.97					20. 6. 54.48	- 3.27	$\Sigma$ 2653.
20. 9. 51.41			51.15					20. 10. 22.67	- 2.84	$\Sigma$ 2659.
20. 23. 8.87			8.73					20. 23. 40.25	- 3.62	Piazzi XX. 177.p.
20. 38. 21.05			20.90					20. 38. 52.43	- 3.60	$\Sigma$ 2725.
20. 55. 41.54			41.32					20. 56. 12.86	- 3.29	$\Sigma$ 2747.
21. 22. 43.97			43.87	15.36	31.49			21. 23. 15.43	- 4.19	$\beta$ Aquarii.
21. 57. 9.70			9.59	41.20	31.61			21. 57. 41.17	- 4.17	$\alpha$ Aquarii.
22. 27. 4.39			4.28					22. 27. 35.87		Pallas.
22. 56. 23.34			23.19	54.84	31.65			22. 56. 54.80	- 4.10	$\alpha$ Pegasi.

Error of Collimation = - 0".63.

Level Error = - 3".21. From Aug. 30 = - 3".41. From Sept. 9 = - 2".23.

The Meridian Error from Sept. 6 by Polaris Sept. 9, and the mean of the two observations of Polaris SP Sept. 10, allowing + 0".29 for loss of clock and change of Al.

The Meridian Error from Sept. 11 by Polaris SP (mean of 2 obs.), Polaris, and Polaris SP (mean of 2 obs.), Sept. 13 and 14.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		ml. s.	ml. s.	ml. s.	ml. s.	ml. s.	ml. s.	h. ml. s.		
Sept. 18	* N.P.D. 62°. 56'....	51,9	6,9	21,7	36,8	52,1	7,1	19. 20. 22,0		B.
	Σ 2556. ....				7,9	22,1	36,1	19. 32. 51,1	- 21,77	B.
	Σ 2576. ....	13,9	29,2	46,0	2,1	18,1	33,9	19. 39. 50,0		B.
	(a) * N.P.D. 67°. 59'....		54,7	9,1	23,7	38,1	52,9	19. 48. 7,1	- 7,26	B.
	Σ 2611. <i>sp.</i> ....	35,0	54,1	14,0	33,6	53,9	13,1	19. 54. 33,0		B.
	Σ 2624. ....				4,7	21,0	37,1	19. 57. 54,0	- 24,84	B.
	Σ 2643. ....	20,0	33,9	47,1	0,8	14,1	27,4	20. 4. 40,9		B.
	Σ 2653. ....					37,0	51,8	20. 7. 6,2	- 29,44	B.
	Σ 2665. ....			14,9	28,2	42,2	56,1	20. 12. 9,9	- 13,87	B.
	Piazzi XX. 177. <i>p.</i> ...	27,0	40,6	54,1	8,0	21,9	35,2	20. 23. 49,0		B.
	Σ 2725. ....	38,1	52,1	6,0	20,1	34,0	47,9	20. 39. 2,1		B.
	Σ 2747. <i>f.</i> ....	50,0	7,0	23,9	40,6	57,7	14,0	20. 56. 31,1		B.
	β Aquarii. ....	2,6	16,1	29,4	43,2	57,1	9,9	21. 23. 23,8		B.
	α Aquarii. ....	28,4	42,0	55,4	9,1	22,9	35,9	21. 57. 49,2		B.
	(b) Pallas. ....	42,9	56,1	9,9	23,1	36,8	50,0	22. 27. 3,7		B.
	α Pegasi. ....	40,9	54,8	9,1	22,4	36,9	50,3	22. 57. 4,2		B.
Sept. 21	α Aquilæ. ....	49,8	3,3	17,1	30,7	44,1	57,5	19. 43. 11,3		G.
	β Aquilæ. ....	18,7	32,2	45,6	59,2	13,0	26,2	19. 47. 39,9		G.
	β Aquarii. ....	0,1	13,7	27,1	40,8	54,4	7,7	21. 23. 21,4		G.
	α Aquarii. ....				6,5	20,2	33,5	21. 57. 47,0	- 20,20	G.
	Pallas. ....	43,7	57,3	10,8	24,1	38,0		22. 24. ....	+ 13,43	G.
Sept. 22	α Ophiuchi. ....	19,0	32,7	46,5	0,4	14,7	28,1	17. 27. 41,9		B.
	Σ 2556. ....	20,5	35,1	49,4	4,0	18,7	33,1	19. 32. 47,2		B.
	Σ 2576. <i>np.</i> ....	10,1	26,0	42,1	58,1	14,6	30,4	19. 39. 46,2		B.
	Σ 2665. ....		57,1	10,9	25,0	39,0	52,2	20. 12. 5,8	- 6,93	B.
	Piazzi XX. 177. <i>p.</i> ...	23,3	37,2	50,9	4,6	18,4	32,0	20. 23. 45,4		B.
	Σ 2725. ....	34,8	48,9	3,0	16,8	31,1	44,7	20. 38. 58,4		B.
	β Aquarii. ....	58,9	12,7	26,0	39,3	53,0	6,9	21. 23. 20,1		B.
	Piazzi XXI. 248. ....	15,9	40,1	4,9	29,1	54,1	18,2	21. 34. 43,0		B.
	α Aquarii. ....	25,1	38,6	52,1	5,8	19,1	32,2	21. 57. 45,8		B.
	Pallas. ....		18,9	32,4	46,1	59,3	12,4	22. 24. 26,2	- 6,73	B.
Sept. 23	(c) Polaris SP. ....		45.44,4	53.56,7	2.27,8	10.50,0	19.11,6	13. ....	+ 0,49	B.
	* N.P.D. 62°. 56'....	47,1	2,2	17,1	32,4	47,7	2,9	19. 20. 17,9		B.
	* Aquilæ. ....	58,1	12,1	25,7	39,4	53,2	7,0	19. 41. 20,5		B.
	* N.P.D. 67°. 59'....	35,8	50,2	5,0	19,2	34,0	48,2	19. 48. 2,9		B.
	Σ 2606. ....	3,1	19,0	35,0	50,8	7,1	22,7	19. 52. 39,0		B.
	Σ 2616. ....		24,1	38,0	51,7	5,9	19,1	19. 55. 33,0	- 6,94	B.
	(b) Σ 2643. ....	15,5		43,1	56,0	9,9	22,8	20. 4. 36,1	- 4,50	B.
	Σ 2653. ....				18,1	32,9	46,9	20. 7. 2,1	- 22,07	B.
	Σ 2659. ....		9,1	27,9	46,0	5,1	23,1	20. 10. 41,2	- 9,23	B.
	(d) Σ 2747. <i>p.</i> ....	45,0	2,1	19,0	35,5	53,0	9,3	20. 56. 26,0		B.
	β Aquarii. ....	57,9	11,8	25,1	38,7	52,3	5,9	21. 23. 19,1		B.
	Piazzi XXI. 248. ....	15,0	39,4	4,2	28,7	53,4	17,3	21. 34. 42,2		B.
	α Aquarii. ....	24,2	37,8	51,2	4,8	18,1	31,3	21. 57. 44,9		B.
	Pallas. ....	28,0	41,7	55,0	8,4	22,0	35,0	22. 23. 48,4		B.
	A.S.C. 2697. ....	15,0	28,7	42,1	55,4	9,0	22,1	22. 26. 35,7		B.
	α Pegasi. ....	36,7	50,5	4,2	18,1	32,0	46,0	22. 56. 59,9		B.
	(c) Polaris. ....	37.33,5	45.59,6					1. ....	+ 20. 59,37	B.
Sept. 24	α Aquilæ. ....	47,0	0,5	14,1	27,5	41,7	55,0	19. 43. 8,5		G.
	β Aquilæ. ....	15,9	29,2	43,0	56,3	10,4	23,7	19. 47. 37,0		G.
Sept. 25	(c) Polaris SP. ....	37.15,7	45.41,7	53.54,4	2.27,6	10.47,8		13. 27. 35,6	+ 2. 47,89	B.
	Σ 2523. <i>np.</i> ....	37,2	51,3	6,1	20,9	35,4	49,5	19. 20. 3,7		B.
	(b) δ Cygni. ....			5,1	24,1	43,4	1,9	19. 40. 20,8	- 18,96	B.
	(a) * N.P.D. 67°. 59'....	33,9	47,9	2,4	17,1	32,0	46,1	19. 48. 0,5		B.
	(f) Σ 2613. ....	35,6	49,2	2,9	16,2	30,0	43,4	19. 53. 57,1		B.
	Σ 2624. ....		24,2	41,0	57,2	14,0	30,5	19. 57. 47,1	- 8,28	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.  
The Transit was levelled Sept. 23, 2<sup>h</sup>.

- (a) Mistaken for Σ 2600.  
(b) Very faint.  
(c) Very cloudy.  
(d) See Sept. 17.

- (e) Cloudy.  
(f) The *Al.* differs from that of Struve's Catalogue,  
but it is the right star.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
h. m. s.	"	"	"	"	"	"	"	h. m. s.	"	"
19. 19. 36.93		+ 0.32	36.74			0.78	31.60	19. 20. 8.97	- 2.92	* N.P.D. 62°. 56'
19. 32. 7.53			7.35					19. 32. 39.58	- 3.11	Σ 2556.
19. 39. 1.88			1.67					19. 39. 33.91	- 2.87	Σ 2576.
19. 47. 23.67			23.49					19. 47. 55.73	- 3.19	* N.P.D. 67°. 59'
19. 53. 33.81			33.53					19. 54. 5.78	- 2.59	Σ 2611. <i>sp.</i>
19. 57. 4.36			4.14					19. 57. 36.39	- 2.93	Σ 2624.
20. 4. 0.60			0.50					20. 4. 32.75	- 3.85	Σ 2643.
20. 6. 22.23			22.05					20. 6. 54.31	- 3.26	Σ 2653.
20. 11. 28.39			28.24					20. 12. 0.50	- 3.49	Σ 2665.
20. 23. 7.97			7.83					20. 23. 40.09	- 3.62	Piazzi XX. 177. <i>p.</i>
20. 38. 20.04			19.89					20. 38. 52.16	- 3.59	Σ 2725.
20. 55. 40.61			40.39					20. 56. 12.67	- 3.28	Σ 2747. <i>f.</i>
21. 22. 43.15			43.05	15.36	32.31			21. 23. 15.34	- 4.19	β Aquarii.
21. 57. 8.99			8.88	41.20	32.32			21. 57. 41.19	- 4.17	α Aquarii.
22. 26. 23.21			23.10					22. 26. 55.43		Pallas.
22. 56. 22.66			22.51	54.84	32.33			22. 56. 54.86	- 4.10	α Pegasi.
19. 42. 30.54		+ 0.92	30.37	4.98	34.61	0.86	33.92	19. 43. 5.00	- 3.44	α Aquilæ.
19. 46. 59.26			59.10	33.70	34.60			19. 47. 33.73	- 3.50	β Aquilæ.
21. 22. 40.74			40.63	15.34	34.71			21. 23. 15.32	- 4.17	β Aquarii.
21. 57. 6.60			6.47	41.18	34.71			21. 57. 41.18	- 4.15	α Aquarii.
22. 24. 24.21			24.08					22. 24. 58.80		Pallas.
17. 27. 0.47			0.29	35.94	35.65	0.88	35.03	17. 27. 35.96	- 2.60	α Ophiuchi.
19. 32. 4.00			3.77					19. 32. 39.52	- 3.04	Σ 2556.
19. 38. 58.22			57.93					19. 39. 33.68	- 2.79	Σ 2576. <i>np.</i>
20. 11. 24.74			24.56					20. 12. 0.33	- 3.43	Σ 2665.
20. 23. 4.54			4.37					20. 23. 40.15	- 3.56	Piazzi xx. 177. <i>p.</i>
20. 38. 16.82			16.63					20. 38. 52.42	- 3.54	Σ 2725.
21. 22. 39.56			39.43	15.33	35.88			21. 23. 15.26	- 4.16	β Aquarii.
21. 33. 29.33			28.83					21. 34. 4.65	- 3.19	Piazzi XXI. 248.
21. 57. 5.53			5.40	41.18	35.78			21. 57. 41.23	- 4.15	α Aquarii.
22. 23. 45.82			45.69					22. 24. 21.54		Pallas.
13. 2. 26.59	34.90		36.35	14.40	38.05	0.93	35.89	1. 3. 12.74	- 47.18	Polaris SP.
19. 19. 32.47			32.22					19. 20. 8.86	- 2.82	* N.P.D. 62°. 56'
19. 40. 39.63			39.26					19. 41. 15.91	- 3.31	* Aquilæ.
19. 47. 19.33			19.10					19. 47. 55.76	- 3.10	* N.P.D. 67°. 59'
19. 51. 50.93			50.66					19. 52. 27.32	- 2.87	Σ 2606.
19. 54. 51.69			51.51					19. 55. 28.17	- 3.33	Σ 2616.
20. 3. 56.07			55.93					20. 4. 32.62	- 3.78	Σ 2643.
20. 6. 17.93			17.69					20. 6. 54.36	- 3.17	Σ 2653.
20. 9. 46.17			45.81					20. 10. 22.48	- 2.71	Σ 2659.
20. 55. 35.70			35.39					20. 56. 12.09	- 3.20	Σ 2747. <i>p.</i>
21. 22. 38.69			38.58	15.32	36.74			21. 23. 15.30	- 4.15	β Aquarii.
21. 33. 28.60			28.10					21. 34. 4.83	- 3.17	Piazzi XXI. 248.
21. 57. 4.61			4.48	41.17	36.69			21. 57. 41.22	- 4.14	α Aquarii.
22. 23. 8.36			8.23					22. 23. 44.99		Pallas.
22. 25. 55.43			55.30					22. 26. 32.06	- 4.20	A.S.C. 2697.
22. 56. 18.20			18.02	54.84	36.82			22. 56. 54.80	- 4.10	α Pegasi.
1. 2. 45.92	37.33		35.98	14.53	38.55		36.82	1. 3. 12.84	- 47.31	Polaris.
19. 42. 47.76		+ 1.11	47.60	4.94	37.34	1.09	36.43			α Aquilæ.
19. 46. 56.50			56.35	33.66	37.31					β Aquilæ.
13. 2. 25.02	33.33		35.08	14.85	39.77	1.23	37.83	1. 3. 13.58	- 47.63	Polaris SP.
19. 19. 20.58	20.36							19. 19. 59.18	- 2.94	Σ 2523. <i>np.</i>
19. 30. 24.10			23.73					19. 40. 2.57	- 2.37	δ Cygni.
19. 47. 17.13			16.91					19. 47. 55.74	- 3.07	* N.P.D. 67°. 59'
19. 53. 16.34			16.18					19. 53. 55.03	- 3.38	Σ 2619.
19. 56. 57.39			57.10					19. 57. 35.95	- 2.79	Σ 2624.

Error of Collimation = - 0".63.

Level Error = - 2".23. From Sept 21 = - 3".40.

The Meridian Error from Sept. 21 by Polaris SP and Polaris Sept. 23, allowing + 0".59 for loss of clock and change of M.

The Meridian Error from Sept. 24 by Polaris SP and Polaris Sept. 25, allowing + 0".43 for loss of clock and change of M.

Month and Day.	NAME OF STAR or PLANET.	1.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Sept. 25	Σ 2668. ....	.....	.....	37.1	54.0	11.2	28.0	20. 14. 45.4	- 17.30	B.
	Σ 2702. ....	.....	15.0	30.9	47.1	3.9	20.0	20. 29. 36.2	- 8.18	B.
	Σ 2708. ....	.....	29.9	47.0	4.1	21.2	38.0	20. 32. 55.1	- 8.55	B.
	α Andromedæ. ....	50.5	5.7	21.1	36.4	52.1	6.9	0. 0. 22.0		B.
	Polaris. ....	37.31.3	45.57.2	54.22.7	2.42.0	11.16.3	19.30.2	1. 27. 54.3		B.
	Ceres. ....	17.9	31.7	45.1	58.5	12.1	25.2	1. 48. 38.7		B.
	α Arietis. ....	55.0	9.7	24.0	39.0	53.6	7.9	1. 58. 22.7		B.
Sept. 29	(a) α Andromedæ. ....	45.4	1.1	16.1	31.2	46.9	2.1	0. 0. 17.2		B.
Sept. 30	Σ 2523. <i>np.</i> ....	31.0	45.1	59.4	14.0	28.7	42.9	19. 19. 57.2		B.
	(a) Σ 2624. ....	2.0	18.2	34.6	51.2	8.1	24.0	19. 57. 41.0		B.
	Piazzi XX. 26. <i>sp.</i> ...	7.0	20.2	33.9	47.2	1.1	14.1	20. 4. 27.5		B.
	Σ 2665. ....	33.6	47.9	1.5	15.2	29.3	42.9	20. 11. 57.1		B.
	Σ 2702. <i>nf.</i> ....	52.1	8.1	24.9	41.0	57.4	13.5	20. 29. 30.0		B.
	Σ 2708. ....	6.2	23.4	40.7	58.0	15.1	31.9	20. 32. 49.0		B.
	β Aquarii. ....	49.9	3.2	17.1	30.2	44.1	57.1	21. 23. 11.0		B.
	Piazzi XXI. 248. ....	6.2	31.1	55.3	20.0	45.1	8.9	21. 34. 33.6		B.
	α Aquarii. ....	16.0	29.3	42.7	56.1	9.9	23.0	21. 57. 36.7		B.
	Pallas. ....	29.3	42.9	56.3	10.2	24.0	37.0	22. 19. 50.6		B.
	α Pegasi. ....	28.3	42.1	56.1	9.9	23.9	37.5	22. 56. 52.0		B.
	α Andromedæ. ....	44.6	59.8	15.0	30.4	46.1	0.8	0. 0. 16.1		B.
	Polaris. ....	37.26.3	45.52.2	54.15.7	2.38.2	11. 8.7	19.24.8	1. 27. 50.3		B.
	(b) Ceres. ....	38.1	51.4	5.2	18.5	32.2	45.5	1. 44. 59.3		B.
	α Arietis. ....	49.1	4.0	18.4	32.9	48.1	2.2	1. 58. 16.8		B.
	Vesta. ....	22.8	36.1	49.7	3.1	16.8	30.0	2. 20. 43.1		B.
	Oct. 1	α Ceti. ....	.....	50.1	3.4	16.6	30.6	43.8	2. 53. 57.3	- 6.74
Oct. 2	(c) Polaris SP. ....	37. 7.8	45.32.4	53.46.7	2.19.5	10.40.2	19. 5.7	13. 27. 30.2		B.
	Σ 2523. <i>np.</i> ....	29.0	43.2	57.6	12.0	26.2	40.3	19. 19. 55.0		B.
	δ Cygni. ....	18.9	37.5	56.8	15.4	35.1	53.3	19. 40. 12.3		B.
	Σ 2609. <i>sp.</i> ....	15.0	32.0	49.1	5.9	23.1	39.9	19. 52. 57.0		B.
	Σ 2619. <i>sp.</i> ....	.....	.....	15.1	35.1	55.1	14.9	19. 56. 35.0	- 20.06	B.
	(a) Σ 2643. ....	.....	.....	31.9	45.2	59.0	12.1	20. 4. 25.9	- 13.49	B.
	(a) Σ 2658. ....	.....	58.0	20.1	42.1	5.0	26.7	20. 9. ....	- 0.02	B.
	(d) Σ 2668. ....	53.6	.....	28.2	45.7	3.0	19.8	20. 14. 37.4	- 5.77	B.
	Σ 2695. ....	41.7	57.0	11.7	26.1	41.1	56.1	20. 25. 10.8		B.
	Σ 2702. <i>nf.</i> ....	49.9	6.1	22.1	38.9	55.2	11.1	20. 29. 28.0		B.
	Σ 2708. ....	4.2	21.6	38.5	55.7	13.1	29.9	20. 32. 46.9		B.
	γ Delphini. <i>f.</i> ....	.....	5.9	20.0	33.6	47.9	1.8	20. 39. 15.4	- 6.99	B.
	β Aquarii. ....	47.3	1.1	14.7	28.1	42.0	55.1	21. 23. 8.7		B.
	α Pegasi. ....	26.0	40.2	54.0	7.8	22.2	35.5	22. 56. 49.3		B.
	α Andromedæ. ....	42.5	57.2	12.9	28.1	43.9	58.6	0. 0. 14.1		B.
	(c) Polaris. ....	37.28.7	45.53.8	54.17.7	2.40.2	11.12.6	19.25.5	1. 27. 50.3		B.
	Ceres. ....	3.8	17.1	30.7	44.0	58.0	11.1	1. 43. 24.8		B.
	α Arietis. ....	47.0	1.5	16.0	30.9	45.3	0.0	1. 58. 14.5		B.
	Vesta. ....	54.3	8.1	21.4	35.0	48.3	1.7	2. 19. 15.1		B.
	Oct. 5	(d) Polaris SP. ....	37. 3.7	.....	53.42.7	.....	.....	.....	13. 27. 28.2	+ 2. 49.45
Piazzi XIX. 149. <i>sp.</i> ...		19.9	36.1	52.9	9.8	26.9	43.2	19. 21. 59.8		B.
(d) δ Cygni. ....		.....	34.2	53.0	12.1	31.2	49.9	19. 40. 9.2	- 9.48	B.
(d) ψ Cygni. ....		.....	58.9	20.8	42.2	5.0	26.1	19. 51. 48.0	- 10.93	B.
(d) Σ 2616. ....		.....	.....	24.0	37.6	.....	5.1	19. 55. 19.0	- 13.84	B.
Σ 2666. ....		48.4	6.1	23.4	41.0	59.2	16.8	20. 12. 34.1		B.
(f) Σ 2681. ....		37.1	59.9	22.1	44.1	7.1	29.0	20. 18. 51.1		B.
Σ 2695. ....		37.9	53.1	8.0	22.9	38.0	52.5	20. 25. 7.8		B.
γ Delphini. <i>f.</i> ....		47.9	1.9	15.7	29.6	44.0	57.8	20. 39. 11.9		B.
(d) β Aquarii. ....		43.9	57.8	11.1	24.5	38.1	51.5	21. 23. 5.2		B.
Oct. 6	(g) α Pegasi. ....	21.9	35.8	49.2	3.7	17.3	31.1	22. 56. 45.2		G.
ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, GFEDCBA.										
From Oct. 6. .... EAST. .... ABCDEFG.										
The Transit was levelled Oct. 2, 2 <sup>h</sup> .										
The Transit was reversed Oct. 6, 2½ <sup>h</sup> , and levelled just before and after reversing.										
(a) Very cloudy. (b) Hurried. (c) Cloudy and unsteady. (d) Cloudy. (e) Unsteady.										
(f) Hazy. The observation has been increased 1 <sup>m</sup> . (g) The clock errors by G's observations on this day have been increased by 0 <sup>m</sup> .28, for reasons given in the Introduction.										



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. (from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR, or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
20. 13. 53.84		+ 1.11	53.53			1.23	37.83	20. 14. 52.40	- 2.81	Σ 2668.
20. 28. 47.34			47.05					20. 29. 25.93	- 3.03	Σ 2702.
20. 32. 4.00			3.69					20. 32. 42.57	- 2.97	Σ 2708.
23. 59. 36.39			36.14	15.15	39.01					α Andromeda.
1. 2. 44.86	36.27		34.64	14.94	40.30		39.06	1. 3. 13.75	- 47.72	Polaris.
1. 47. 58.46			58.35					1. 48. 37.50		Ceres.
1. 57. 38.85			38.63	17.84	39.21					α Arietis.
23. 59. 31.43		+ 1.78	31.20	15.17	43.97	1.09	43.97			α Andromeda.
19. 19. 14.04			13.85			1.06	43.97	19. 19. 58.67	- 2.84	Σ 2523. <i>np.</i>
19. 56. 51.30			51.02					19. 57. 35.87	- 2.68	Σ 2624.
20. 3. 47.29			47.20					20. 4. 32.06	- 3.58	Piazzi XX. 26. <i>sp.</i>
20. 11. 15.36			15.22					20. 12. 0.08	- 3.31	Σ 2665.
20. 28. 41.00			40.72					20. 29. 25.59	- 2.93	Σ 2702. <i>nf.</i>
20. 31. 57.76			57.47					20. 32. 42.34	- 2.87	Σ 2708.
21. 22. 30.37			30.31	15.26	44.95			21. 23. 15.22	- 4.09	β Aquarii.
21. 33. 20.02			19.52					21. 34. 4.44	- 3.01	Piazzi XXI. 248.
21. 56. 56.24			56.16	41.13	44.97			21. 57. 41.10	- 4.10	α Aquarii.
22. 19. 10.04			9.97					22. 19. 54.92		Pallas.
22. 56. 9.98			9.84	54.83	44.99			22. 56. 54.82	- 4.09	α Pegasi.
23. 59. 30.40			30.17	15.18	45.01			0. 0. 15.20	- 4.38	α Andromeda.
1. 2. 59.46	30.83		28.21	15.75	47.54		43.03	1. 3. 13.28	- 48.53	Polaris.
1. 44. 18.60			18.53					1. 45. 3.64		Ceres.
1. 57. 53.07			32.86	17.93	45.07			1. 58. 17.98	- 4.50	α Arietis.
2. 20. 3.08			2.98					2. 20. 48.11		Vesta.
2. 53. 16.89			16.79	2.73	45.94	1.12	45.80			α Ceti.
13. 2. 17.50	25.84		28.65	16.09	47.44	1.17	46.08	1. 3. 14.79	- 48.87	Polaris SP.
19. 19. 11.90	11.71							19. 19. 58.73	- 2.81	Σ 2523. <i>np.</i>
19. 39. 15.61			15.25					19. 40. 2.29	- 2.17	δ Cygni.
19. 52. 6.00			5.71					19. 52. 52.76	- 2.54	Σ 2609. <i>sp.</i>
19. 55. 34.98			34.59					19. 56. 21.64	- 2.20	Σ 2619. <i>sp.</i>
20. 3. 45.33			45.26					20. 4. 32.32	- 3.66	Σ 2643.
20. 8. 42.36			41.91					20. 9. 28.97	- 2.11	Σ 2658.
20. 13. 45.51			45.22					20. 14. 32.29	- 2.67	Σ 2668.
20. 24. 26.56			26.14					20. 25. 13.21	- 3.10	Σ 2695.
20. 28. 38.76			38.48					20. 29. 25.56	- 2.90	Σ 2702. <i>nf.</i>
20. 31. 55.70			55.41					20. 32. 42.49	- 2.84	Σ 2708.
20. 38. 33.78			33.62					20. 39. 20.71	- 3.39	γ Delphini. <i>f.</i>
21. 22. 28.13			28.09	15.24	47.15			21. 23. 15.21	- 4.07	β Aquarii.
22. 56. 7.86			7.72	54.82	47.10			22. 56. 54.92	- 4.08	α Pegasi.
23. 59. 28.19			27.96	15.18	47.22		47.25	0. 0. 15.21	- 4.30	α Andromeda.
1. 2. 41.26	32.63		30.01	16.22	46.21			1. 3. 17.31	- 49.00	Polaris.
1. 42. 44.21			44.15					1. 43. 31.48		Ceres.
1. 57. 30.74			30.53	17.96	47.43			1. 58. 17.87	- 4.53	α Arietis.
2. 18. 34.84			34.74					2. 19. 22.10		Vesta.
13. 2. 14.32			25.61	16.85	51.24	0.95	49.82	1. 3. 15.48	- 49.63	Polaris SP.
19. 21. 9.80			9.51					19. 22. 0.10	- 2.29	Piaz. XIX. 149. <i>sp.</i>
19. 39. 12.12			11.75					19. 40. 2.35	- 2.09	δ Cygni.
19. 50. 42.57			42.12					19. 51. 32.73	- 1.86	φ Cygni.
19. 54. 37.58			37.43					19. 55. 28.04	- 3.14	Σ 2616.
20. 11. 41.24			40.95					20. 12. 31.57	- 2.54	Σ 2666.
20. 17. 44.34			43.88					20. 18. 34.50	- 2.11	Σ 2681.
20. 24. 22.88			22.66					20. 25. 13.29	- 3.05	Σ 2695.
20. 38. 29.83			29.67					20. 39. 20.31	- 3.35	γ Delphini. <i>f.</i>
21. 22. 24.59			24.53	15.20	50.67					β Aquarii.
22. 56. 3.46		+ 2.45	3.44	54.81	51.65	0.98	50.65	22. 56. 54.75	- 4.07	α Pegasi.

Error of Collimation = - 0".63. From Oct. 6 = - 0".07.

Level Error = - 3".40. From Sept. 29 = - 3".42. From Oct. 5 = - 3".49, by the levelling before reversal.

From Oct. 6 = - 2".32 by the levelling after reversal.

The Meridian Error from Sept. 29 by Polaris Sept. 30, and Polaris SP and Polaris Oct. 2, the first observation being corrected to Oct. 1 by allowing - 1".08 for loss of clock and + 0".17 for change of *AL*.

The Meridian Error from Oct. 6 by Polaris and Polaris SP Oct. 6, allowing + 0".42 for loss of clock and change of *AL*.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Oct. 6	$\alpha$ Andromedæ.....	38,2	53,7	8,5	24,0	39,4	54,7	0. 0. 9,8		G.
	Polaris.....	37.24,3	45.51,7	54. 4,2	2.36,4	11. 0,2	19.23,3	1. 27. 47,2		B.
	Ceres.....	47,0	0,7	14,0	27,7	41,1	54,4	1. 40. 8,0		B.
	$\alpha$ Arietis.....	42,8	57,1	11,6	26,4	41,0	55,5	1. 58. 10,1		B.
	Vesta.....	42,7	56,1	9,4	22,9	36,7	50,1	2. 16. 3,3		B.
	(a) Polaris SP.....	.....	45.29,2	53.54,3	.....	10.48,6	19. 4,7	13.....	- 0,98	B.
Oct. 7	(a) Piazzì XX. 429.....	31,8	52,9	13,3	34,7	55,5	16,5	20. 53. 37,4		B.
	(a) $\Sigma$ 2757.....	42,1	4,0	25,0	47,1	9,0	30,7	20. 59. 52,9		B.
	$\beta$ Aquarii.....	41,9	55,4	9,2	22,4	36,0	49,9	21. 23. 3,1		B.
Oct. 9	Piazzì XIX. 149. <i>nf.</i> ...	16,0	32,5	49,0	5,9	22,3	39,0	19. 21. 56,0		B.
	(a) $\pi$ Aquilæ.....	39,9	53,1	6,7	20,6	34,0	48,0	19. 41. 2,0		B.
	(a) $\psi$ Cygni.....	32,9	54,3	16,0	38,1	0,1	21,8	19. 51. 43,9		B.
	(b) $\Sigma$ 2631.....	39,8	54,0	8,1	22,7	37,0	51,6	20. 0. 6,0		B.
	$\Sigma$ 2658.....	28,0	50,1	11,7	34,1	56,6	19,0	20. 9. 40,9		B.
	$\Sigma$ 2668.....	45,9	3,1	20,0	37,2	55,0	12,1	20. 14. 29,0		B.
	$\Sigma$ 2695.....	33,8	48,6	3,0	18,4	33,0	48,1	20. 25. 3,1		B.
	(c) $\Sigma$ 2720.....	34,9	48,9	2,3	17,0	30,7	44,9	20. 35. 59,1		B.
	$\gamma$ Delphini. <i>f.</i> .....	43,7	57,9	11,5	25,4	39,4	53,6	20. 39. 7,3		B.
	(d) $\beta$ Leonis.....	19,8	33,9	47,8	2,1	15,9	29,7	11. 40. 43,9		B.
	(e) Polaris SP.....	37. 1,4	45.27,7	53.49,7	2.12,6	.....	18.58,8	13.....	+ 6. 44,36	B.
Oct. 11	$\Sigma$ 2658.....	25,1	47,3	9,2	32,0	54,0	16,1	20. 9. 38,0		B.
	$\Sigma$ 2681.....	30,3	52,9	14,9	37,5	59,7	22,0	20. 18. 44,1		B.
	(c) $\Sigma$ 2720.....	.....	46,1	59,7	13,9	28,1	42,0	20. 35. 55,8	- 7,00	B.
	(f) Piazzì XX. 429.....	27,1	48,1	8,8	30,0	51,0	11,8	20. 53. 32,4		B.
	$\beta$ Aquarii.....	37,1	50,8	4,1	17,8	31,2	45,1	21. 22. 58,1		B.
	(a) $\alpha$ Andromedæ.....	31,9	47,1	2,3	18,0	33,2	48,8	0. 0. 4,1		B.
Oct. 12	(a) $\Sigma$ 2611. <i>sp.</i> .....	.....	.....	46,9	7,1	27,0	46,4	19. 54. 6,4	- 19,68	B.
	(a) $\alpha$ Pegasi.....	14,7	28,7	42,1	56,0	10,1	23,9	22. 56. 37,8		B.
	(a) Ceres.....	35,7	49,3	2,4	16,1	29,9	43,2	1. 34. 56,4		B.
	$\alpha$ Arietis.....	35,6	50,1	5,1	19,4	34,0	48,6	1. 58. 3,1		B.
	(g) Vesta.....	.....	.....	49,3	2,9	16,4	30,2	2. 10. 43,2	- 13,43	B.
	(a) Polaris SP.....	.....	45.22,7	53.47,2	2.10,3	10.41,5	.....	13. 27. 21,7	- 1. 41,62	B.
Oct. 13	(a) $\beta$ Leonis.....	16,6	30,8	44,2	58,5	12,8	26,2	11. 40. 40,2		B.
Oct. 15	$\alpha$ Andromedæ.....	27,4	42,8	57,9	13,4	28,6	43,8	0. 0. 59,0		G.
	Vesta.....	31,9	45,3	58,4	12,3	25,7	.....	2. 8.....	+ 13,46	G.
Oct. 16	(a) A.S.C. 2697.....	48,1	1,8	.....	28,4	41,9	55,2	22. 27. 9,1	- 2,28	B.
	(a) $\alpha$ Pegasi.....	9,6	23,4	37,1	51,3	5,2	18,9	22. 57. 32,4		B.
	$\alpha$ Andromedæ.....	26,1	41,2	56,1	11,8	27,1	42,3	0. 0. 57,8		B.
	Ceres.....	2,1	15,6	28,8	42,7	56,2	9,8	1. 32. 23,2		B.
	Vesta.....	33,4	46,8	0,3	14,1	27,2	40,8	2. 7. 54,1		B.
	Piazzì XIX. 149. <i>p.</i> ...	4,1	20,7	37,0	54,1	10,8	27,6	19. 22. 44,1		B.
Oct. 18	$\pi$ Aquilæ.....	28,4	42,0	55,6	9,8	23,4	37,1	19. 41. 50,8		B.
	$\beta$ Aquilæ.....	46,9	0,5	14,2	27,3	40,9	54,6	19. 48. 8,1		B.
	$\Sigma$ 2606.....	33,1	49,1	5,1	21,0	37,1	53,3	19. 53. 9,2		B.
	(a) $\Sigma$ 2619.....	.....	.....	.....	.....	36,1	56,1	19. 57. 16,1	- 40,12	B.
	$\Sigma$ 2635.....	42,8	56,1	9,7	23,1	37,0	50,7	20. 3. 4,1		B.
	(c) $\Sigma$ 2666.....	33,0	50,8	7,9	25,9	43,2	0,9	20. 13. 18,7		B.
	Piazzì XX. 429.....	18,3	39,5	0,1	21,1	42,1	2,7	20. 54. 23,8		B.
	(a) $\Sigma$ 2757.....	28,3	50,3	11,7	33,9	55,3	17,2	21. 0. 39,0		B.
	(a) $\beta$ Aquarii.....	.....	42,0	55,9	.....	22,9	35,9	21. 23. 50,1	- 8,10	B.
	(a) Piazzì XXI. 248.....	45,1	9,5	34,0	59,1	23,4	48,1	21. 35. 12,5		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

The Transit was levelled Oct. 11, 2<sup>h</sup>, and Oct. 18, 2<sup>h</sup>.Oct. 13, 23<sup>h</sup>. The clock was put forward 1<sup>m</sup>.

(a) Cloudy.

(b) The right star.

(c) Very faint.

(d) Grouped with the following clock stars.

(e) Cloudy and very unsteady.

(f) Seconds not taken from the clock: 30<sup>s</sup> have been added.

(g) Confused by a preceding star, which was mistaken for the planet.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
$\begin{smallmatrix} h & m & s \end{smallmatrix}$	$\begin{smallmatrix} s \end{smallmatrix}$	"	$\begin{smallmatrix} s \end{smallmatrix}$	$\begin{smallmatrix} h & m \end{smallmatrix}$	$\begin{smallmatrix} s \end{smallmatrix}$	$\begin{smallmatrix} s \end{smallmatrix}$	$\begin{smallmatrix} s \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \end{smallmatrix}$	$\begin{smallmatrix} s \end{smallmatrix}$	
23. 59. 24.04	30.70	+ 2.45	23.95	15.19	51.52	0.98	51.63	0. 0. 15.30	- 4.31	$\alpha$ Andromedæ.
1. 2. 35.33			27.10	17.14	50.04			1. 3. 18.77	- 49.92	Polaris.
1. 39. 27.56			27.62					1. 40. 19.32		Ceres.
1. 57. 26.36			26.29	18.03	51.74			1. 58. 18.00	- 4.60	$\alpha$ Arietis.
2. 15. 23.03			23.03					2. 16. 14.77		Vesta.
13. 2. 18.22	22.67		26.53	17.20	50.67	1.09	51.60	1. 3. 18.72	- 49.98	Polaris SP.
20. 52. 34.59			34.35					20. 53. 26.90	- 2.56	Piazzi XX. 429.
20. 58. 47.26			47.00					20. 59. 39.55	- 2.56	$\Sigma$ 2757.
21. 22. 22.55			22.61	15.18	52.57					$\beta$ Aquarii.
19. 21. 5.81			5.69			1.18	53.94	19. 22. 0.58	- 2.19	Piaz. XIX. 149. n/f.
19. 40. 20.61			20.61					19. 41. 15.52	- 3.05	$\pi$ Aquilæ.
19. 50. 38.16			37.91					19. 51. 32.83	- 1.73	$\psi$ Cygni.
19. 59. 22.74			22.69					20. 0. 17.61	- 2.93	$\Sigma$ 2631.
20. 8. 34.34			34.09					20. 9. 29.02	- 1.89	$\Sigma$ 2658.
20. 13. 37.47			37.33					20. 14. 32.26	- 2.50	$\Sigma$ 2668.
20. 24. 18.29			18.22					20. 25. 13.16	- 2.97	$\Sigma$ 2695.
20. 35. 16.83			16.81					20. 36. 11.77	- 3.25	$\Sigma$ 2720.
20. 38. 25.54			25.52					20. 39. 20.48	- 3.29	$\gamma$ Delphini. f.
11. 40. 1.87	18.60		1.85	58.85	57.00		56.30	11. 40. 58.72	- 2.10	$\beta$ Leonis.
13. 2. 14.40			22.46	17.26	54.80			1. 3. 19.40	- 50.04	Polaris SP.
20. 8. 31.67			31.42					20. 9. 28.71	- 1.83	$\Sigma$ 2638.
20. 17. 37.33			37.10					20. 18. 34.40	- 1.91	$\Sigma$ 2681.
20. 35. 13.93			13.91					20. 36. 11.23	- 3.23	$\Sigma$ 2720.
20. 52. 29.88			29.65					20. 53. 26.98	- 2.45	Piazzi XX. 429.
21. 22. 17.75			17.81	15.13	57.32			21. 23. 15.16	- 3.96	$\beta$ Aquarii.
23. 59. 17.92			17.84	15.20	57.36			0. 0. 15.32	- 4.32	$\alpha$ Andromedæ.
19. 53. 7.08			6.88			1.20	57.45	19. 54. 5.32	- 1.92	$\Sigma$ 2611. sp.
22. 55. 56.19			56.18	54.77	58.59					$\alpha$ Pegasi.
1. 34. 16.14			16.20				58.65	1. 35. 14.93		Ceres.
1. 57. 19.42			19.36	18.11	58.75					$\alpha$ Arietis.
2. 10. 2.97			3.01					2. 11. 1.77		Vesta.
13. 2. 11.06			19.12	17.24	58.12			1. 3. 18.42	- 50.02	Polaris SP.
11. 39. 58.48			58.46	58.91	60.45	1.21	59.86			$\beta$ Leonis.
0. 0. 13.27		+ 2.69	13.20	15.19	1.99	1.25	1.99			$\alpha$ Andromedæ.
2. 8. 12.18			12.23					2. 8. 14.33		Vesta.
22. 26. 28.47			28.52			1.26	2.32	22. 26. 32.02	- 4.05	A.S.C. 2697.
22. 56. 51.12			51.13	54.74	3.61					$\alpha$ Pegasi.
0. 0. 11.77			11.70	15.19	3.49		3.38			$\alpha$ Andromedæ.
1. 31. 42.63			42.70					1. 31. 46.36		Ceres.
2. 7. 13.81			13.86					2. 7. 17.55		Vesta.
19. 21. 54.06			53.94			1.16	4.73	19. 21. 59.60	- 1.98	Piazzi XIX. 149. p.
19. 41. 9.59			9.60					19. 41. 15.28	- 2.90	$\pi$ Aquilæ.
19. 47. 27.50			27.53	33.28	5.75					$\beta$ Aquilæ.
19. 52. 21.12			21.02					19. 52. 26.71	- 2.33	$\Sigma$ 2606.
19. 56. 15.98			15.78					19. 56. 21.47	- 1.72	$\Sigma$ 2619.
20. 2. 23.36			23.39					20. 2. 29.09	- 3.10	$\Sigma$ 2635.
20. 12. 25.77			25.63					20. 12. 31.34	- 2.22	$\Sigma$ 2666.
20. 53. 21.08			20.86					20. 53. 26.60	- 2.25	Piazzi XX. 429.
20. 59. 33.67			33.43					20. 59. 39.18	- 2.24	$\Sigma$ 2757.
21. 23. 9.26			9.35	15.04	5.69					$\beta$ Aquarii.
21. 33. 58.82			58.53					21. 34. 4.30	- 2.50	Piazzi XXI. 248.

Error of Collimation = - 0".07.

Level Error = - 2".32. From Oct. 9 = - 2".19. From Oct. 15 = - 2".09.

The observation of Polaris SP Oct. 10 shews that the Meridian Error on that day was nearly the same as on Oct. 6.

The Meridian Error from Oct. 15 by Polaris and Polaris SP Oct. 19, allowing + 0".47 for loss of clock and change of  $\Delta$ .

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s. s.	m. s.	
Oct. 19	(a) $\alpha$ Aquilæ.....	17,1	30,4	43,8	57,9	...	24,7	19.43.38,2	+ 2,27	B.
	$\beta$ Aquilæ.....	45,9	59,2	12,7	26,1	39,9	53,2	19.48.7,0		B.
	$\Sigma$ 2606.....	32,0	47,8	3,9	20,1	35,7	52,1	19.53.8,2		B.
	(b) * N.P.D. 74°. 59'.....	.....	.....	26,9	41,0	55,0	8,9	19.56.22,3	- 13,91	B.
	Piazzi XX. 26. <i>sp.</i> .....	44,4	58,0	11,1	24,9	38,1	51,8	20.5.5,2		B.
	$\Sigma$ 2681. <i>nf.</i> .....	20,8	43,1	4,8	27,8	50,1	12,1	20.19.34,2		B.
	$\Sigma$ 2723.....	36,0	49,3	2,9	17,0	30,7	44,1	20.37.58,0		B.
	$\Sigma$ 2757.....	.....	49,1	11,0	32,6	54,1	16,0	21.0.38,0	- 10,86	B.
	$\beta$ Aquarii.....	27,3	41,1	54,1	8,1	21,7	35,0	21.23.48,9		B.
	(c) $\Sigma$ 2813. <i>p.</i> .....	.....	.....	39,0	.....	29,1	53,4	21.32.17,9	- 30,61	B.
	Piazzi XXI. 256. <i>sp.</i> .....	7,5	32,1	56,2	21,2	45,7	10,9	21.36.35,1		B.
	$\Sigma$ 2861. <i>nf.</i> .....	45,1	59,7	14,0	28,2	42,8	56,9	21.59.11,3		B.
	$\eta$ Aquarii.....	27,7	41,0	54,4	8,0	21,9	35,1	22.27.48,7		B.
	(d) $\alpha$ Pegasi.....	5,9	20,1	33,7	47,9	1,8	15,5	22.57.29,4		B.
	Polaris.....	38.7,2	46.32,4	54.47,7	3.21,8	11.43,5	20.9,2	1.....	+ 4.12,36	B.
	Ceres.....	21,8	35,1	48,1	2,1	15,7	29,0	1.29.42,4		B.
	$\alpha$ Arietis.....	27,3	42,1	56,3	11,1	25,9	40,4	1.58.55,1		B.
	Vesta.....	36,5	49,9	3,3	17,0	30,3	43,8	2.4.57,1		B.
	(e) Polaris SP.....	37.47,6	46.12,8	54.38,5	3.1,8	11.34,2	.....	13.....	+ 8.23,53	B.
Oct. 20	(d) $\alpha$ Aquilæ.....	16,1	29,4	43,2	57,0	10,2	24,1	19.43.37,3		B.
	$\beta$ Aquilæ.....	44,8	58,3	11,6	25,3	38,9	52,4	19.48.6,1		B.
	$\Sigma$ 2609.....	54,0	10,8	27,7	45,1	2,1	19,0	19.53.36,1		B.
	$\Sigma$ 2651.....	40,9	55,0	8,3	23,0	37,0	50,5	20.7.4,3		B.
	$\Sigma$ 2667. <i>sp.</i> .....	18,0	36,8	55,0	14,7	33,9	53,0	20.13.11,9		B.
	(f) $\Sigma$ 2723.....	34,3	48,2	2,0	15,7	29,3	43,1	20.37.56,9		B.
	$\Sigma$ 2757.....	27,0	48,2	9,8	32,1	53,7	15,1	21.0.37,1		B.
	$\beta$ Aquarii.....	26,7	40,1	53,3	7,0	20,7	34,1	21.23.47,7		B.
	(g) Piazzi XXI. 248.....	43,0	7,7	31,9	57,1	21,2	46,1	21.35.10,7		B.
	$\Sigma$ 2861. <i>nf.</i> .....	44,1	58,8	13,1	27,1	41,3	56,0	21.59.10,0		B.
	$\eta$ Aquarii.....	27,1	40,3	53,6	7,2	20,9	34,1	22.27.47,9		B.
	$\alpha$ Pegasi.....	5,1	19,0	32,9	47,1	1,0	14,7	22.57.28,4		B.
Oct. 21	$\alpha$ Pegasi.....	4,4	18,3	31,8	46,1	59,9	13,7	22.57.27,5		G.
	$\alpha$ Andromedæ.....	20,8	36,1	50,9	6,8	21,5	37,2	0.0.52,3		G.
	Ceres.....	35,8	49,3	2,3	16,2	29,4	.....	1.27.....	+ 13,52	G.
	Vesta.....	37,8	51,2	4,3	18,1	31,6	.....	2.2.....	+ 13,46	G.
Oct. 22	(h) $\alpha$ Aquilæ.....	14,1	27,2	41,1	55,0	8,3	21,9	19.43.35,3		B.
	$\beta$ Aquilæ.....	42,8	56,2	9,2	23,1	36,7	50,1	19.48.3,9		B.
	$\Sigma$ 2610. <i>np.</i> .....	13,9	29,9	45,5	2,9	19,0	36,1	19.53.51,9		B.
	Piazzi XX. 26.....	41,6	55,0	8,1	21,9	35,1	48,3	20.5.2,0		B.
	(a) $\Sigma$ 2667. <i>nf.</i> .....	16,1	35,1	54,0	13,4	32,1	50,9	20.12.....	+ 9,54	B.
Oct. 23	(i) $\alpha$ Pegasi.....	2,1	16,1	29,8	43,9	57,8	11,5	22.57.25,5		G.
Oct. 25	$\alpha$ Andromedæ.....	16,0	31,6	46,4	2,0	17,1	32,2	0.0.47,9		B.
	(k) Polaris.....	38.6,6	.....	54.53,3	3.12,4	11.42,7	20.3,8	1.....	+ 1.41,70	B.
	Ceres.....	6,9	20,9	33,6	47,6	0,9	15,0	1.24.28,2		B.
	(a) Vesta.....	38,7	52,1	5,2	19,0	32,2	45,9	1.58.59,1		B.
	(a) Ceti.....	9,0	22,7	36,0	49,4	3,1	16,6	2.54.30,1		B.
Nov. 2	Polaris.....	37.49,8	46.13,3	54.28,7	3.3,8	11.26,7	19.52,2	1.28.16,5		B.
	Ceres.....	34,7	48,2	1,8	15,2	29,0	42,3	1.17.56,1		B.
	Vesta.....	53,1	6,4	19,8	33,1	46,8	0,1	1.51.13,6		B.
	$\alpha$ Arietis.....	11,9	26,3	40,7	55,4	10,1	24,7	1.58.39,1		B.
	$\alpha$ Ceti.....	59,8	13,2	26,6	40,1	53,4	7,1	2.54.20,6		B.
Nov. 6	(l) $\Sigma$ 2720.....	.....	.....	28,9	43,3	57,2	10,9	20.36.25,2	- 14,00	B.
	$\Sigma$ 2738.....	1,6	15,4	29,1	43,0	57,0	10,9	20.51.25,0		B.
	(m) $\Sigma$ 2750.....	.....	.....	47,2	1,4	15,1	28,8	20.57.....	- 6,85	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.  
The Transit was levelled Oct. 26, 2<sup>h</sup>, and Nov. 8, 3<sup>h</sup>.

(a) Cloudy. (b) Cloudy and faint.  
(c) Very faint. (d) Blazing.  
(e) Cloudy and unsteady.  
(f) Seconds not from clock: 20<sup>s</sup> have been added.  
(g) Triple: the brightest taken.

(h) Flaming. (i) Good.  
(k) Very cloudy and doubtful: the seconds of wire IV  
should probably be 22<sup>s</sup>.4. No use is made of this  
observation. (l) Extremely cloudy.  
(m) Cloudy and very faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R A Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
19. 42. 37.62		+ 2.69	37.63	4.54	6.89	1.06	5.98	19. 43. 4.50	- 3.00	$\alpha$ Aquilæ.
19. 47. 26.29			26.32	33.26	6.94			19. 47. 33.17	- 3.06	$\beta$ Aquilæ.
19. 52. 19.97			19.87					19. 52. 26.73	- 2.31	$\Sigma$ 2606.
19. 55. 40.91			40.90					19. 55. 47.76	- 2.87	* N.P.D. 74°. 59'.
20. 4. 24.79			24.84					20. 4. 31.71	- 3.29	Piazzi xx. 26. sp.
20. 18. 27.56			27.32					20. 18. 34.20	- 1.65	$\Sigma$ 2681. <i>nf</i> .
20. 37. 16.86			16.87					20. 37. 23.76	- 3.21	$\Sigma$ 2723.
20. 59. 32.61			32.37					20. 59. 39.28	- 2.21	$\Sigma$ 2757.
21. 23. 8.03			8.12	15.03	6.91			21. 23. 15.04	- 3.86	$\beta$ Aquarii.
21. 31. 4.24			3.95					21. 31. 10.88	- 2.43	$\Sigma$ 2813. <i>p</i> .
21. 35. 21.24			20.95					21. 35. 27.89	- 2.49	Piaz. xxi. 256. sp.
21. 58. 28.29			28.26					21. 58. 35.21	- 3.56	$\Sigma$ 2861. <i>nf</i> .
22. 27. 8.12			8.19					22. 27. 15.16	- 4.04	$\eta$ Aquarii.
22. 56. 47.76			47.77	54.72	6.95			22. 56. 54.76	- 3.98	$\alpha$ Pegasi.
1. 3. 19.33	15.17		11.21	17.66	6.45		7.04	1. 3. 18.29	- 50.44	Polaris.
1. 29. 2.03			2.12					1. 29. 9.23		Ceres.
1. 58. 11.17			11.13	18.20	7.07			1. 58. 18.26	- 4.77	$\alpha$ Arietis.
2. 4. 16.84			16.89					2. 4. 24.02		Vesta.
13. 3. 2.51	6.51		10.75	17.65	6.90	1.00	6.95	1. 3. 18.24	- 50.43	Polaris SP.
19. 42. 56.76			56.79	4.53	7.74			19. 43. 4.56	- 2.99	$\alpha$ Aquilæ.
19. 47. 25.34			25.37	33.25	7.88			19. 47. 33.14	- 3.05	$\beta$ Aquilæ.
19. 52. 44.97			44.85					19. 52. 52.63	- 2.11	$\Sigma$ 2609.
20. 6. 22.71			22.70					20. 6. 30.49	- 2.90	$\Sigma$ 2651.
20. 12. 14.76			14.58					20. 12. 22.37	- 1.96	$\Sigma$ 2667. sp.
20. 37. 13.64			13.65					20. 37. 23.46	- 3.19	$\Sigma$ 2723.
20. 59. 31.85			31.61					20. 59. 39.43	- 2.19	$\Sigma$ 2757.
21. 23. 7.09			7.18	15.01	7.83			21. 23. 15.02	- 3.84	$\beta$ Aquarii.
21. 33. 56.82			56.53					21. 34. 4.38	- 2.45	Piazzi XXI. 248.
21. 58. 27.20			27.17					21. 58. 35.04	- 3.55	$\Sigma$ 2861. <i>nf</i> .
22. 27. 7.30			7.37					22. 27. 15.25	- 4.04	$\eta$ Aquarii.
22. 56. 46.89			46.90	54.71	7.81			22. 56. 54.81	- 3.97	$\alpha$ Pegasi.
22. 56. 45.96			45.97	54.71	8.74	1.07	7.69			$\alpha$ Pegasi.
0. 0. 6.52			6.45	15.18	8.73		8.76			$\alpha$ Andromedæ.
1. 27. 16.12			16.21					1. 27. 25.03		Ceres.
2. 2. 18.06			18.11					2. 2. 26.96		Vesta.
19. 42. 54.70			54.73	4.50	9.77	1.08	9.02			$\alpha$ Aquilæ.
19. 47. 23.14			23.17	33.22	10.05					$\beta$ Aquilæ.
19. 53. 2.74			2.63					19. 53. 12.55	- 2.17	$\Sigma$ 2610. <i>np</i> .
20. 4. 21.71			21.76					20. 4. 31.68	- 3.24	Piazzi XX. 26.
20. 12. 13.14			12.96					20. 12. 22.89	- 1.88	$\Sigma$ 2667. <i>nf</i> .
22. 56. 43.81			43.79	54.69	10.90	1.11	9.84			$\alpha$ Pegasi.
0. 0. 1.88			1.78	15.16	13.38	1.09	13.40			$\alpha$ Andromedæ.
1. 3. 17.46			8.50	16.87	8.37			1. 3. 21.95	- 49.65	Polaris.
1. 23. 47.59			47.66					1. 24. 1.12		Ceres.
1. 58. 18.89			18.93					1. 58. 32.42		Vesta.
2. 53. 49.56			49.58	3.14	13.56					$\alpha$ Ceti.
1. 3. 1.57	57.85	+ 3.22	53.11	15.89	22.78	1.23	22.84			Polaris.
1. 17. 15.33			15.45					1. 17. 38.36		Ceres.
1. 50. 33.27			33.36					1. 50. 56.29		Vesta.
1. 57. 55.46	55.33		55.45	18.31	22.86					$\alpha$ Arietis.
2. 53. 40.11			40.19	3.24	23.05					$\alpha$ Ceti.
20. 35. 43.10		+ 2.78	43.11			1.28	26.46	20. 36. 10.67	- 2.80	$\Sigma$ 2720.
20. 50. 43.14			43.15					20. 51. 10.72	- 2.92	$\Sigma$ 2738.
20. 57. 1.27			1.29					20. 57. 28.87	- 3.05	$\Sigma$ 2750.

Error of Collimation -- 0".07.

Level Error -- 2".09. From Oct. 23 -- 2".51. From Nov. 2 -- 1".87.

The Meridian Error from Nov. 2 by Polaris and  $\alpha$  Arietis Nov. 2, allowing 0".08 for loss of clock.

..... from Nov. 6 by Polaris and Polaris SP Nov. 8, allowing + 0".58 for loss of clock and + 0".17 for change of *M*.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		ml. s.	ml. s.	ml. s.	ml. s.	ml. s.	ml. s.	h. ml. s.		
Nov. 6	$\Sigma$ 2769. <i>sf</i> .....	14,1	28,8	42,9	57,7	12,0	26,7	21. 3. 41,1		B.
	(a) $\Sigma$ 2789. <i>np</i> .....	.....	.....	.....	26,1	48,0	10,2	21. 15. 32,0	- 33,06	B.
	$\beta$ Aquarii.....	6,7	20,1	33,1	47,0	0,6	14,0	21. 23. 27,8		B.
	(b) $\Sigma$ 2861. <i>nf</i> .....	24,9	39,0	53,1	7,5	21,8	36,0	21. 58. 50,2		B.
	(b) $\Sigma$ 2881.....	.....	24,9	.....	55,7	11,3	26,1	22. 7. ....	- 3,88	B.
	$\alpha$ Pegasi.....	45,0	59,1	12,7	26,8	40,7	54,5	22. 57. 8,4		B.
	(a) $\alpha$ Andromedæ.....	2,0	17,1	32,2	47,3	3,1	18,0	0. 0. 33,0		B.
	(b) Ceres.....	37,3	51,0	4,0	18,0	31,4	45,0	1. 14. 58,8		B.
	(b) Vesta.....	14,8	27,7	41,3	55,1	8,4	22,2	1. 47. ....	+ 6,73	B.
	$\alpha$ Arietis.....	6,9	21,2	36,1	50,5	5,1	19,8	1. 58. 34,2		B.
Nov. 8	$\Sigma$ 2609.....	31,0	48,1	4,8	22,0	39,1	56,0	19. 53. 13,1		B.
	$\Sigma$ 2635.....	17,9	31,9	44,7	58,9	12,2	25,9	20. 2. 39,6		B.
	$\Sigma$ 2651.....	18,7	32,4	46,3	0,4	14,1	28,2	20. 6. 42,1		B.
	$\Sigma$ 2667. <i>nf</i> .....	55,3	14,7	33,0	52,9	10,9	31,0	20. 12. 49,8		B.
	$\Sigma$ 2723.....	11,7	25,8	39,1	53,1	6,7	20,9	20. 37. 34,2		B.
	$\Sigma$ 2750.....	17,9	31,3	44,9	59,1	13,0	26,2	20. 57. 39,9		B.
	$\Sigma$ 2769. <i>sf</i> .....	.....	25,9	40,3	55,1	9,8	24,1	21. 3. 38,9	- 7,24	B.
	$\beta$ Aquarii.....	4,1	17,3	31,0	44,3	58,0	11,4	21. 23. 25,0		B.
	$\Sigma$ 2813. <i>f</i> .....	28,1	.....	16,2	41,1	5,9	30,9	21. 31. 55,1	- 8,16	B.
	Piazzi XXI. 256. <i>sp</i> ..	.....	8,1	32,0	57,0	22,1	46,2	21. 36. 11,1	- 12,28	B.
	$\Sigma$ 2840. <i>sp</i> .....	0,3	24,1	46,9	10,8	34,0	57,2	21. 47. 21,1		B.
	$\alpha$ Aquarii.....	30,1	43,7	56,9	10,3	24,1	37,2	21. 57. 50,8		B.
	(c) $\Sigma$ 2889.....	46,6	1,1	16,1	31,0	45,9	0,9	22. 9. 16,0		B.
	$\Sigma$ 2902. <i>p</i> .....	30,7	49,4	8,1	27,1	45,8	5,0	22. 17. 23,7		B.
	A.S.C. 2697.....	21,1	34,4	48,1	1,5	14,8	28,1	22. 26. 41,8		B.
	$\alpha$ Pegasi.....	42,6	56,4	10,1	24,2	38,1	52,0	22. 57. 5,9		B.
	$\alpha$ Andromedæ.....	59,1	14,3	29,1	45,0	0,1	15,2	0. 0. 30,9		B.
	(a) Polaris.....	37.36,2	46. 5,5	54.21,3	2.51,7	11.17,3	19.42,2	1. 28. 8,3		B.
	(a) Polaris SP.....	37.18,5	.....	54.10,6	.....	.....	19.22,6	13. 27. 49,3	- 2. 4,97	B.
Nov. 10	(a) $\beta$ Aquarii.....	2,2	15,2	28,8	41,9	56,4	9,2	21. 23. 22,8		B.
	$\alpha$ Aquarii.....	27,7	41,1	54,1	8,1	21,6	35,1	21. 57. 48,6		B.
	$\Sigma$ 2889.....	43,9	58,9	13,4	28,9	43,8	58,8	22. 9. 13,7		B.
	$\Sigma$ 2902. <i>p</i> .....	.....	47,1	5,8	25,1	43,8	2,9	22. 17. 21,9	- 9,43	B.
	A.S.C. 2697.....	18,8	32,1	45,3	59,1	12,5	26,1	22. 26. 39,3		B.
	(a) $\alpha$ Pegasi.....	40,2	.....	8,1	21,9	35,9	49,7	22. 57. 3,8	- 4,62	B.
Nov. 11	(a) Piazzi XX. 26. <i>sp</i> ....	17,2	31,1	44,2	57,4	11,1	24,5	20. 4. 38,0		B.
	(a) $\Sigma$ 2666.....	3,9	.....	.....	57,3	14,9	33,2	20. 12. 50,0	- 10,62	B.
	(d) $\Sigma$ 2760. <i>p</i> .....	.....	14,1	30,0	46,0	2,4	18,1	21. 0. 33,7	- 8,06	B.
	$\Sigma$ 2789.....	14,0	36,0	57,1	20,0	41,6	4,1	21. 15. 25,8		B.
	$\beta$ Aquarii.....	0,3	14,0	27,1	41,1	54,3	7,9	21. 23. 21,3		B.
	(a) $\alpha$ Andromedæ.....	55,7	11,1	26,0	41,2	56,7	11,9	0. 0. 27,1		B.
	(a) Polaris.....	37.32,6	46. 1,8	.....	2.54,5	11.16,2	19.41,3	1. 28. 4,7	- 1. 25,34	B.
	(a) Vesta.....	3,8	17,2	30,2	43,8	57,5	11,1	1. 43. 24,2		B.
	(a) $\alpha$ Arietis.....	0,9	15,4	30,0	44,9	59,1	14,0	1. 58. 28,2		B.
	(e) * N.P.D. 56°. 30'....	.....	.....	.....	12,3	28,0	44,0	21. 0. 59,3	- 24,22	B.
Nov. 12	$\Sigma$ 2789. <i>np</i> .....	12,9	34,3	56,1	18,4	40,3	2,9	21. 15. 24,8		B.
	$\beta$ Aquarii.....	59,1	12,7	26,2	39,8	53,1	7,1	21. 23. 20,3		B.
	$\mu$ Cygni. <i>np</i> .....	44,7	59,9	15,0	30,1	45,3	0,7	21. 37. 16,0		B.
	$\alpha$ Aquarii.....	25,1	38,8	52,2	6,1	19,2	32,5	21. 57. 46,1		B.
	$\Sigma$ 2889.....	41,8	56,7	11,1	26,2	41,0	56,1	22. 9. 11,1		B.
	$\Sigma$ 2902. <i>p</i> .....	26,0	44,7	3,4	22,8	41,1	0,3	22. 17. 19,1		B.
	$\eta$ Aquarii.....	59,8	13,0	26,1	40,1	53,2	7,0	22. 27. 20,3		B.
	$\alpha$ Pegasi.....	38,0	51,9	5,4	19,7	33,2	47,1	22. 57. 1,2		B.
	$\alpha$ Andromedæ.....	54,9	9,9	24,7	40,2	55,4	11,1	0. 0. 26,2		B.
	Polaris.....	37.32,7	46. 2,5	54.19,6	2.50,7	11.13,6	19.38,3	1. 28. 6,2		B.
	Vesta.....	17,2	30,5	44,0	57,3	11,1	24,1	1. 42. 37,8		B.
	$\alpha$ Arietis.....	59,9	14,3	28,8	43,3	58,0	12,7	1. 58. 27,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

- (a) Cloudy.  
 (b) Faint from haziness.  
 (c) Very faint.

- (d) Written down '*np*': probably a mistake for *sp*.  
 (e) Mistaken for  $\Sigma$  2760 which is nearly on the same parallel.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. m. s.	s.	"	s.	s.	s.	s.	s.	A. m. s.	s.	
21. 2. 57.62		+ 2.78	57.59			1.28	26.46	21. 3. 25.17	- 2.85	$\Sigma$ 2769. <i>sf.</i>
21. 14. 26.01			25.79					21. 14. 53.38	- 1.86	$\Sigma$ 2789. <i>np.</i>
21. 22. 47.03			47.14	14.78	27.64			21. 23. 14.74	- 3.61	$\beta$ Aquarii.
21. 58. 7.50			7.50					21. 58. 35.13	- 3.31	$\Sigma$ 2861. <i>nf.</i>
22. 6. 55.62			55.56					22. 7. 23.20	- 3.22	$\Sigma$ 2881.
22. 56. 26.74			26.76	54.55	27.79			22. 56. 54.44	- 3.81	$\alpha$ Pegasi.
23. 59. 47.53			47.48	15.10	27.62			0. 0. 15.22	- 4.22	$\alpha$ Andromedæ.
1. 14. 17.93			18.02				27.74	1. 14. 45.83		Ceres.
1. 46. 54.98			55.06					1. 47. 22.89		Vesta.
1. 57. 50.54			50.51	18.33	27.82			1. 58. 18.36	- 4.90	$\alpha$ Arietis.
19. 52. 22.01			21.91			1.23	29.09	19. 52. 52.02	- 1.69	$\Sigma$ 2609.
20. 1. 58.73			58.77					20. 2. 28.89	- 2.79	$\Sigma$ 2635.
20. 6. 0.31			0.32					20. 6. 30.44	- 2.60	$\Sigma$ 2651.
20. 11. 52.51			52.55					20. 12. 22.48	- 1.47	$\Sigma$ 2667. <i>nf.</i>
20. 36. 53.07			53.09					20. 37. 23.24	- 2.90	$\Sigma$ 2723.
20. 56. 58.90			58.92					20. 57. 29.08	- 3.03	$\Sigma$ 2750.
21. 2. 55.11			55.08					21. 3. 25.25	- 2.82	$\Sigma$ 2769. <i>sf.</i>
21. 22. 44.44			44.53	14.76	30.23			21. 23. 14.72	- 3.59	$\beta$ Aquarii.
21. 30. 41.39			41.12					21. 31. 11.31	- 1.79	$\Sigma$ 2813. <i>f.</i>
21. 34. 57.14			56.87					21. 35. 27.07	- 1.85	Piaz. xx1. 256. <i>sp.</i>
21. 46. 10.63			10.39					21. 46. 40.60	- 2.14	$\Sigma$ 2840. <i>sp.</i>
21. 57. 10.44			10.52	40.70	30.18			21. 57. 40.73	- 3.67	$\alpha$ Aquarii.
22. 8. 51.08			51.04					22. 9. 1.27	- 3.27	$\Sigma$ 2889.
22. 16. 27.12			26.96					22. 16. 57.19	- 2.96	$\Sigma$ 2902. <i>p.</i>
22. 26. 1.40			1.47					22. 26. 31.71	- 3.81	A.S.C. 2697.
22. 56. 24.19			24.21	54.53	30.32			22. 56. 54.48	- 3.79	$\alpha$ Pegasi.
23. 59. 44.81	48.07		44.76	15.08	30.32			0. 0. 15.08	- 4.20	$\alpha$ Andromedæ.
1. 2. 51.79	38.86		43.98	13.98	30.00		30.32	1. 3. 14.35	- 46.76	Polaris.
13. 2. 35.28			43.24	13.81	30.57			1. 3. 14.23	- 46.59	Polaris SP.
21. 22. 42.35			42.44	14.73	32.29	1.15	31.39	21. 23. 14.86	- 3.56	$\beta$ Aquarii.
21. 57. 8.05			8.13	40.67	32.54			21. 57. 40.57	- 3.64	$\alpha$ Aquarii.
22. 8. 28.77			28.73					22. 9. 1.18	- 3.23	$\Sigma$ 2889.
22. 16. 25.00			24.86					22. 16. 57.32	- 2.90	$\Sigma$ 2902. <i>p.</i>
22. 25. 59.03			59.10					22. 26. 31.56	- 3.78	A.S.C. 2697.
22. 56. 21.98			22.00	54.51	32.51			22. 56. 54.49	- 3.77	$\alpha$ Pegasi.
20. 3. 57.65		+ 3.92	57.78			1.16	32.55	20. 4. 31.30	- 2.95	Piazzi xx. 26. <i>sp.</i>
20. 11. 57.24			57.14					20. 12. 30.67	- 1.66	$\Sigma$ 2666.
20. 59. 45.99			45.94					21. 0. 19.51	- 2.39	$\Sigma$ 2760. <i>p.</i>
21. 14. 19.80			19.58					21. 14. 53.15	- 1.70	$\Sigma$ 2789.
21. 22. 40.85			41.01	14.72	33.71			21. 23. 14.59	- 3.55	$\beta$ Aquarii.
23. 59. 41.38			41.36	15.05	33.69			0. 0. 15.07	- 4.17	$\alpha$ Andromedæ.
1. 2. 49.84			40.33	13.09	32.74		33.71	1. 3. 14.11	- 45.87	Polaris.
1. 42. 43.97			44.11					1. 43. 17.90		Vesta.
1. 57. 44.64			44.63	18.35	33.70			1. 58. 18.45	- 4.92	$\alpha$ Arietis.
21. 0. 11.68			11.63			1.14	33.72	21. 0. 46.35	- 2.37	* N.P.D. 56°. 30'.
21. 14. 18.53			18.51					21. 14. 53.04	- 1.68	$\Sigma$ 2789. <i>np.</i>
21. 22. 39.76			39.92	14.70	34.78			21. 23. 14.66	- 3.53	$\beta$ Aquarii.
21. 36. 30.24			30.22					21. 37. 4.97	- 2.87	$\alpha$ Cygni. <i>np.</i>
21. 57. 5.71			5.85	40.64	34.79			21. 57. 40.61	- 3.61	$\alpha$ Aquarii.
22. 8. 26.29			26.29					22. 9. 1.06	- 3.20	$\Sigma$ 2889.
22. 16. 22.48			22.35					22. 16. 57.15	- 2.86	$\Sigma$ 2902. <i>p.</i>
22. 26. 39.92			40.06					22. 27. 14.84	- 3.77	$\eta$ Aquarii.
22. 56. 19.50			19.57	54.48	34.91			22. 56. 54.38	- 3.74	$\alpha$ Pegasi.
23. 59. 40.34			40.32	15.04	34.72			0. 0. 15.18	- 4.16	$\alpha$ Andromedæ.
1. 2. 49.09	45.37		39.60	12.85	35.25		34.86	1. 3. 14.51	- 45.63	Polaris.
1. 41. 57.45			57.57					1. 42. 32.51		Vesta.
1. 57. 45.44			45.45	18.36	34.91			1. 58. 18.40	- 4.95	$\alpha$ Arietis.

Error of Collimation = - 0".07.

Level Error = - 1".87.

The Meridian Error from Nov. 11, by Polaris and Polaris SP Nov. 12, allowing + 0".68 for loss of clock and change of  $\Delta L$ .



Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 12	(a) Polaris SP. ....	37.12,3	45.36,6	54. 2,7	... ..	11. 0,5	... ..	13. 27. 42,7	+ 3. 21,19	B.
Nov. 15	(a) $\alpha$ Coronæ Borealis....	35,7	50,8	5,4	21,1	36,2	51,8	15. 27. ....	+ 7,58	B.
Nov. 16	Vesta .....	24,2	37,5	51,1	4,6	18,1	... ..	1. 39. 45,0	+ 4,49	G.
	$\alpha$ Arietis .....	56,7	11,6	25,4	40,5	55,2	9,9	1. 58. 24,3		G.
	$\alpha$ Ceti .....	44,8	58,3	11,7	25,1	38,8	52,0	2. 54. 5,5		G.
	$\alpha$ Coronæ Borealis....	35,1	50,1	5,0	20,3	35,8	51,1	15. 28. 6,0		B.
Nov. 18	(b) $\Sigma$ 2750. ....	8,1	21,5	35,6	49,6	3,1	17,1	20. 57. 30,6		B.
	$\Sigma$ 2769. <i>sf</i> . ....	2,1	16,7	31,1	45,9	0,2	14,9	21. 3. 29,0		B.
	$\beta$ Aquarii. ....	54,2	7,9	21,0	34,7	48,2	2,1	21. 23. 15,4		B.
	Piazzi XXI. 256. <i>sp</i> ...	34,1	59,0	23,1	48,2	12,6	37,1	21. 36. 1,7		B.
	(c) $\Sigma$ 2834. ....	... ..	7,1	21,0	35,1	49,8	3,9	21. 44. 18,1	- 7,09	B.
	$\alpha$ Aquarii. ....	20,6	34,1	47,1	0,8	14,3	27,8	21. 57. 41,1		B.
	Piazzi XXII. 11. <i>sf</i> ...	21,0	47,1	12,0	38,2	4,1	29,5	22. 3. 55,5		B.
	33 Pegasi. ....	41,9	56,0	10,1	24,7	39,0	52,9	22. 16. 8,1		B.
	$\Sigma$ 2916. ....	54,1	12,0	29,1	47,0	5,1	22,7	22. 24. 40,2		B.
	$\alpha$ Pegasi. ....	33,2	47,2	0,8	15,0	28,9	42,7	22. 56. 56,4		B.
	$\alpha$ Andromedæ. ....	49,8	5,1	20,0	35,4	51,1	6,1	0. 0. 21,3		B.
	Polaris .....	37.26,2	45.50,7	54. 8,4	2.42,7	11. 7,6	19.33,7	1. 28. 1,4		B.
	Vesta .....	6,2	20,0	53,1	46,8	0,1	13,7	1. 38. 26,9		B.
	$\alpha$ Arietis. ....	55,1	9,9	24,1	38,8	53,4	7,9	1. 58. 22,4		B.
	$\beta$ Aquarii .....	53,0	6,5	19,2	33,1	46,8	0,9	21. 23. 14,0		B.
	$\Sigma$ 2815. ....	54,1	18,4	42,3	7,7	32,2	56,9	21. 33. 21,3		B.
Nov. 20	$\Sigma$ 2834. ....	50,9	5,4	19,1	33,6	47,9	2,1	21. 44. 16,2		B.
	$\Sigma$ 2848. <i>sp</i> . ....	45,1	58,3	12,1	25,8	39,1	52,9	21. 50. 6,2		B.
	$\alpha$ Aquarii. ....	18,4	32,0	45,2	59,1	12,9	26,2	21. 57. 39,6		B.
	Piazzi XXII. 11. <i>sf</i> ...	19,3	45,1	10,3	36,4	2,7	28,1	22. 3. 54,0		B.
	33 Pegasi. ....	40,1	54,3	8,2	23,1	37,2	51,4	22. 16. 6,0		B.
	$\Sigma$ 2916. ....	52,2	10,1	27,4	45,3	3,3	21,0	22. 24. 38,5		B.
	$\Sigma$ 2738. ....	42,9	57,2	11,1	25,1	39,1	53,0	20. 51. 7,2		B.
	(d) * N.P.D. 56°. 30'....	13,7	29,3	45,1	1,2	17,1	32,8	21. 0. 48,4		B.
	$\beta$ Aquarii. ....	48,2	1,9	15,1	29,0	42,1	55,9	21. 23. 9,5		B.
	$\mu$ Cygni. ....	33,9	49,0	3,9	19,3	34,8	49,9	21. 37. 5,0		B.
Nov. 24	$\Sigma$ 2848. <i>sp</i> . ....	40,8	54,1	7,6	21,1	34,7	48,1	21. 50. 2,0		B.
	Piazzi XXII. 11. ....	14,9	40,5	6,1	32,1	58,0	23,4	22. 3. 49,1		B.
	(b) $\Sigma$ 2882. ....	48,1	5,3	22,1	38,9	55,3	12,1	22. 7. 29,1		B.
	33 Pegasi. ....	35,9	50,1	4,1	18,7	33,1	47,1	22. 16. 1,5		B.
	$\Sigma$ 2916. ....	48,1	5,8	23,1	41,1	58,7	16,4	22. 24. 34,0		B.
	Piazzi XXII. 306. <i>np</i> .	22,7	39,1	54,2	10,3	26,1	42,0	22. 59. 58,1		B.
	$\alpha$ Andromedæ. ....	44,1	59,1	14,1	29,3	44,8	59,9	0. 0. 15,2		B.
	$\Sigma$ 40. ....	9,8	26,2	42,1	59,1	16,0	32,4	0. 26. 49,1		B.
	Polaris. ....	37.17,7	45.44,8	54. 1,6	2.34,3	10.58,2	19.23,8	1. 27. 51,6		B.
	$\alpha$ Arietis. ....	49,3	3,9	18,1	33,1	47,3	2,2	1. 58. 16,6		B.
	(c) Polaris SP. ....	36.56,7	45.21,5	53.48,8	2. 9,7	10.45,5	18.59,3	13. 27. 27,5		B.
	$\Sigma$ 2738. ....	43,0	56,8	11,0	24,9	38,2	52,2	20. 51. 6,3		B.
	(b) $\Sigma$ 2759. ....	21,0	36,1	52,1	8,3	24,0	40,0	20. 59. 55,5		B.
	$\beta$ Aquarii. ....	47,7	1,1	14,2	28,1	41,8	55,1	21. 23. 9,1		B.
Nov. 25	$\mu$ Cygni. ....	33,0	48,0	3,1	18,7	34,0	48,9	21. 37. 4,3		B.
	$\Sigma$ 2848. <i>sp</i> . ....	40,1	53,4	7,0	20,6	34,0	47,1	21. 50. 1,0		B.
	$\alpha$ Aquarii. ....	13,7	27,1	40,4	54,0	7,7	21,1	21. 57. 34,2		B.
	$\Sigma$ 2878. ....	9,8	23,3	36,7	50,8	4,3	17,7	22. 6. 31,4		B.
	37 Pegasi. ....	32,0	45,7	59,1	12,8	26,1	39,9	22. 21. 53,2		B.
	A.S.C. 2697. ....	5,0	18,2	31,2	45,1	58,4	12,1	22. 26. 25,4		B.
	(f) Piazzi XXII. 219. <i>f</i> ...	15,2	28,7	42,1	56,0	9,2	22,7	22. 39. 36,0		B.
	$\Sigma$ 2958. ....	30,9	44,6	58,1	12,1	26,0	39,2	22. 48. 53,1		B.
	Piazzi XXII. 306. ....	22,1	38,0	53,1	9,6	25,1	41,1	22. 59. 57,0		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, ABCDEFG.

The Transit was levelled Nov. 16, 3<sup>h</sup>, and Nov. 24, 2<sup>h</sup>.

(a) Very cloudy and unsteady. Fall of temperature between the 12th and 15th. B's observation Nov. 15 has been corrected by + 0<sup>h</sup>.28 for personal equation. See Introduction.

(b) Very faint.

(c) Confused by a preceding star.

(d) The star observed Nov. 12.

(e) An unsteady blur.

(f) Written down '*sf*': probably a mistake for *nf*.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. (from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
13. 2. 28,15	31,73	+ 3,92	37,90	12,74	34,84	1,14	34,86	1. 3. 13,38	- 45,52	Polaris SP.
15. 27. 21,08		+ 3,56	21,29	58,94	37,65	0,62	37,30	15. 27. 58,99	- 1,50	$\alpha$ Coronæ Bor.
1. 39. 4,57			4,66				37,92	1. 39. 42,62		Vesta.
1. 57. 40,51			40,47	18,37	37,90			1. 58. 18,44	- 4,94	$\alpha$ Arietis.
2. 53. 25,17			25,24	3,35	38,11			2. 54. 3,23	- 4,81	$\alpha$ Ceti.
15. 27. 20,48			20,41	58,94	38,53	0,71	38,07			$\alpha$ Coronæ Bor.
20. 56. 40,38			40,41			0,80	38,83	20. 57. 28,94	- 2,88	$\Sigma$ 2750.
21. 2. 45,70			45,66					21. 3. 25,19	- 2,66	$\Sigma$ 2769. <i>sf</i> .
21. 22. 34,79			34,91	14,63	39,72			21. 23. 14,45	- 3,46	$\beta$ Aquarii.
21. 34. 47,97			47,62					21. 35. 27,17	- 1,51	Piaz. XXI. 256. <i>sp</i> .
21. 43. 35,41			35,40					21. 44. 14,95	- 3,06	$\Sigma$ 2834.
21. 57. 0,83			0,92	40,57	39,65			21. 57. 40,48	- 3,54	$\alpha$ Aquarii.
22. 2. 38,20			37,82					22. 3. 17,38	- 1,91	Piaz. XXI. 11. <i>sf</i> .
22. 15. 24,67			24,66					22. 16. 4,23	- 3,28	33 Pegasi.
22. 23. 47,17			47,02					22. 24. 26,60	- 2,94	$\Sigma$ 2916.
22. 56. 14,89			14,90	54,42	39,52			22. 56. 54,49	- 3,68	$\alpha$ Pegasi.
23. 59. 35,54	35,36		35,47	14,99	39,52			0. 0. 15,10	- 4,11	$\alpha$ Andromedæ.
1. 2. 41,33	36,50		31,26	10,83	39,57		39,63			Polaris.
1. 57. 46,69			46,78					1. 58. 26,46		Vesta.
1. 57. 38,80			38,76	18,38	39,62			1. 58. 18,46	- 4,95	$\alpha$ Arietis.
21. 22. 33,36		+ 4,09	33,53	14,60	41,07	0,85	40,44			$\beta$ Aquarii.
21. 32. 7,56			7,28					21. 32. 48,48	- 1,40	$\Sigma$ 2815.
21. 43. 33,60			33,63					21. 44. 14,86	- 3,03	$\Sigma$ 2834.
21. 49. 25,64			25,75					21. 50. 6,96	- 3,35	$\Sigma$ 2848. <i>sp</i> .
21. 56. 59,06			59,20	40,54	41,34					$\alpha$ Aquarii.
22. 2. 36,56			36,25					22. 3. 17,47	- 1,85	Piaz. XXI. 11. <i>sf</i> .
22. 15. 22,90			22,95					22. 16. 4,18	- 3,25	33 Pegasi.
22. 23. 45,40			45,31					22. 24. 26,54	- 2,58	$\Sigma$ 2916.
20. 50. 25,09			25,15			0,83	44,66	20. 51. 10,53	- 2,66	$\Sigma$ 2738.
21. 0. 1,08			1,04					21. 0. 46,43	- 2,16	* N.P.D. 56°. 30'.
21. 22. 28,82			28,99	14,56	45,57			21. 23. 14,39	- 3,39	$\beta$ Aquarii.
21. 36. 19,40			19,39					21. 37. 4,80	- 2,67	$\mu$ Cygni.
21. 49. 21,20			21,31					21. 50. 6,73	- 3,30	$\Sigma$ 2848. <i>sp</i> .
22. 2. 32,01			31,70					22. 3. 17,12	- 1,71	Piazzi XXI. 11.
22. 6. 38,70			38,63					22. 7. 24,06	- 2,72	$\Sigma$ 2882.
22. 15. 18,65			18,70					22. 16. 4,13	- 3,19	33 Pegasi.
22. 23. 41,02			40,93					22. 24. 26,37	- 2,83	$\Sigma$ 2916.
22. 59. 10,35			10,31					22. 59. 55,77	- 3,40	Piaz. XXI. 306. <i>np</i> .
23. 59. 29,50			29,49	14,92	45,43			0. 0. 14,98	- 4,04	$\alpha$ Andromedæ.
0. 25. 59,25			59,19				45,49	0. 26. 44,69	- 4,34	$\Sigma$ 40.
1. 2. 33,14	29,34		23,32	7,79	44,47			1. 3. 8,84	- 40,57	Polaris.
1. 57. 32,93			32,95	18,38	45,43			1. 58. 18,51	- 4,95	$\alpha$ Arietis.
13. 2. 12,71	16,37		22,82	7,57	44,75	0,82	45,43	1. 3. 8,74	- 40,35	Polaris SP.
20. 50. 24,63			24,69					20. 51. 10,88	- 2,65	$\Sigma$ 2738.
20. 59. 8,15			8,11					20. 59. 54,31	- 2,20	$\Sigma$ 2759.
21. 22. 28,16			28,33	14,54	46,21			21. 23. 14,54	- 3,37	$\beta$ Aquarii.
21. 36. 18,57			18,56					21. 37. 4,78	- 2,65	$\mu$ Cygni.
21. 49. 20,45			20,56					21. 50. 6,78	- 3,28	$\Sigma$ 2848. <i>sp</i> .
21. 56. 54,03			54,17	40,48	46,31			21. 57. 40,40	- 3,45	$\alpha$ Aquarii.
22. 3. 50,57			50,68					22. 6. 36,91	- 3,35	$\Sigma$ 2878.
22. 21. 12,68			12,79					22. 21. 59,03	- 3,50	37 Pegasi.
22. 25. 45,06			45,20					22. 26. 31,44	- 3,60	A.S.C. 2697.
22. 38. 55,70			55,86					22. 39. 42,11	- 3,75	Piaz. XXI. 219. <i>f</i> .
22. 48. 12,00			12,08					22. 48. 58,34	- 3,58	$\Sigma$ 2938.
22. 59. 9,43			9,39					22. 59. 55,66	- 3,39	Piazzi XXI. 306.

Error of Collimation = - 0",07.

Level Error = - 1",87. From Nov. 15 = - 2",52. From Nov. 20 = - 1",91.

The Meridian Error from Nov. 15 by  $\alpha$  Andromedæ and Polaris Nov. 18, allowing 0",04 for loss of clock.

The two sets of three consecutive transits of Polaris Nov. 24 and 25 give for Meridian Error + 3",96 and + 4",22, the mean of which is used from Nov. 20

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		W. S.	W. S.	W. S.	W. S.	W. S.	W. S.	A. W. S.	W. S.	
Nov. 25	$\alpha$ Andromedæ.....	43,0	58,1	13,1	28,7	44,1	59,0	0. 0. 14,7		B.
	$\Sigma$ 40.....	8,7	25,1	41,3	58,4	15,1	31,5	0. 26. 48,3		B.
	(a) Polaris.....	37.15,8	45.42,3	53.59,2	2.31,6	10.58,2	19.22,5	1. 27. 49,6		B.
	$\alpha$ Arietis.....	48,1	2,9	17,2	31,9	46,9	1,1	1. 58. 15,9		B.
	(b) Polaris SP. ....	36.48,6	45.15,8	53.48,2	2. 8,4	10.41,3	18.55,5	13. 27. 27,2		B.
Nov. 27	(c) Regulus.....	28,3	42,1	55,8	9,9	23,5	37,2	9. 59. 51,0		G.
Nov. 28	$\gamma$ Aquilæ.....	15,0	28,5	42,0	55,9	9,3	23,1	19. 38. 36,9		G.
	(d) $\alpha$ Aquilæ.....	34,4	48,0	1,3	15,2	29,0	42,3	19. 42. 56,1		G.
	(d) $\beta$ Aquilæ.....	.....	17,0	30,2	44,0	57,7	11,1	19. 47. 24,5	- 6,75	G.
Nov. 30	$\Sigma$ 40.....	3,7	20,3	36,5	53,4	10,1	26,7	0. 26. 43,2		B.
	Polaris.....	37. 5,3	45.34,3	53.49,5	2.21,7	10.46,8	19.13,5	1. ....	+ 4. 13,00	B.
	* N.P.D. 60°. 26'. ..	9,6	25,0	40,2	55,9	11,3	26,8	1. 24. 42,1		B.
	$\alpha$ Arietis.....	43,4	58,0	12,5	27,3	42,0	56,3	1. 58. 11,0		B.
	$\alpha$ Ceti.....	31,9	45,2	58,4	12,1	25,4	39,1	2. 53. 52,4		B.
Dec. 3	$\beta$ Aquarii.....	39,7	53,2	7,1	20,3	34,1	47,2	21. 23. 0,9		B.
	(d) $\alpha$ Aquarii.....	.....	.....	32,9	46,1	0,2	13,1	21. 57. 26,6	- 13,44	B.
	(d) $\Sigma$ 2878.....	2,1	15,7	29,1	43,1	56,2	10,0	22. 6. 23,3		B.
	Piazzi XXII. 219. f. . .	7,2	21,0	34,1	47,7	1,3	15,0	22. 39. 28,3		B.
	$\Sigma$ 2958.....	23,1	36,8	50,1	4,0	17,7	31,4	22. 48. 45,1		B.
	(c) Piazzi XXII. 306. ....	14,1	30,0	45,5	1,6	17,3	33,1	22. 59. 49,0		B.
	(d) $\Sigma$ 3062.....	.....	19,0	44,0	9,1	34,1	59,1	23. 58. 24,1	- 12,52	B.
	(d) Polaris.....	37. 1,3	45.30,5	53.46,2	2.20,3	10.43,8	19.14,8	1. ....	+ 4. 13,03	B.
	(d) Polaris SP. ....	.....	45. 8,6	53.34,8	1.58,5	.....	18.48,3	13. ....	+ 2. 7,54	B.
Dec. 6	A.S.C. 193. np.....	47,2	1,1	14,9	29,9	44,2	58,9	1. 41. 13,1		B.
	$\alpha$ Arietis.....	37,4	52,0	6,2	21,0	35,9	50,2	1. 58. 5,1		B.
	$\alpha$ Ceti.....	25,6	39,2	52,4	6,2	19,4	33,1	2. 53. 46,2		B.
Dec. 8	(d) $\delta$ Ursæ Minoris.....	10.37,5	14.23,4	18. 5,8	21.56,3	25.43,3	.....	18. ....	+ 3. 46,67	B.
	Piazzi XXII. 219. p. . .	1,7	15,1	28,3	42,0	55,6	9,1	22. 39. 22,6		B.
	$\Sigma$ 2958.....	17,8	31,1	44,8	58,9	12,5	26,1	22. 48. 39,9		B.
	$\alpha$ Pegasi.....	13,1	27,0	40,6	55,0	9,0	22,7	22. 56. 36,4		B.
	(d) $\Sigma$ 3062.....	.....	.....	38,1	3,9	28,2	54,2	23. 58. 19,0	- 25,04	B.
	* N.P.D. 60°. 26'. ....	1,7	17,0	32,1	47,6	3,0	18,4	1. 24. 34,0		B.
	$\Sigma$ 162.....	.....	52,1	11,4	32,1	51,1	11,1	1. 39. 31,1	- 9,87	B.
	$\Sigma$ 179.....	.....	22,0	38,9	55,1	12,1	29,1	1. 43. 46,0	- 8,36	B.
	$\alpha$ Arietis.....	35,3	50,0	4,1	19,0	33,5	48,0	1. 58. 2,9		B.
	$\alpha$ Ceti.....	23,2	36,9	50,2	4,0	17,3	31,0	2. 53. 44,1		B.
	Aldebaran.....	12,1	26,0	40,0	54,2	8,1	22,1	4. 26. 36,3		B.
Dec. 9	(d) $\delta$ Ursæ Minoris.....	10.36,4	14.22,6	18. 5,2	21.55,7	25.42,2	.....	18. ....	+ 3. 46,66	B.
Dec. 10	(f) $\Sigma$ 2882.....	32,0	48,9	5,6	22,7	39,2	56,1	22. 7. 13,1		B.
	(f) $\Sigma$ 2905.....	46,1	59,7	13,2	27,1	41,2	55,2	22. 19. 9,1		B.
	37 Pegasi.....	17,1	31,1	44,2	57,7	11,1	24,3	22. 21. 38,1		B.
	$\alpha$ Pegasi.....	11,1	25,1	39,0	53,0	6,8	20,4	22. 56. 34,1		B.
	(f) $\Sigma$ 3013.....	57,4	12,1	25,1	39,4	53,2	6,6	23. 19. 21,1		B.
	$\Sigma$ 3062.....	46,1	11,2	36,1	1,1	26,3	51,6	23. 58. 16,8		B.
	* N.P.D. 55°. 6'. ....	22,1	38,5	55,2	11,4	28,0	44,1	1. 16. 0,8		B.
	* N.P.D. 60°. 26'. ....	59,0	14,7	29,6	45,3	1,1	16,5	1. 24. 32,0		B.
	* N.P.D. 57°. 58'. ....	3,2	19,0	34,2	50,5	6,3	22,2	1. 27. 38,1		B.
	$\Sigma$ 162. p.....	30,1	50,0	9,5	29,2	49,1	9,1	1. 39. 28,8		B.
	$\Sigma$ 179.....	3,2	19,7	36,1	53,0	10,1	26,5	1. 43. 43,4		B.
	A.S.C. 203.....	4,0	17,5	30,3	44,0	57,6	11,2	1. 47. 24,7		B.
	$\alpha$ Arietis.....	33,2	47,2	2,0	16,8	31,4	46,1	1. 58. 0,8		B.
	$\alpha$ Ceti.....	21,3	35,0	48,1	1,7	15,1	28,9	2. 53. 42,1		B.
	9 Tauri.....	58,0	12,8	27,1	42,0	56,1	10,8	3. 27. 25,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.  
The Transit was levelled Dec. 7, 2<sup>h</sup>.

(a) Blazing.  
(b) Unsteady.  
(c) Good.

(d) Cloudy.  
(e) High wind.  
(f) Faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed loss of R.A. c.	Clock Slow at 0h.	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
<i>h. m. s.</i>	<i>s.</i>	<i>"</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>h. m. s.</i>	<i>s.</i>	
23. 59. 28.67		+ 4.09	28.66	14.91	46.25	0.82	43.48	0. 0. 14.96	- 4.03	$\alpha$ Andromedæ.
0. 25. 58.33			58.29				46.30	0. 26. 44.60	- 4.33	$\Sigma$ 40.
1. 2. 31.31	27.51		21.49	7.35	45.86			1. 3. 7.82	- 40.13	Polaris.
1. 57. 32.00			32.02	18.38	46.36			1. 58. 18.39	- 4.95	$\alpha$ Arietis.
13. 2. 9.29	12.95		19.40	7.15	47.75			1. 3. 6.14	- 39.92	Polaris SP.
9. 59. 9.69			9.77	57.94	48.17	0.97	47.85	9. 59. 58.02	- 4.01	Regulus.
19. 37. 55.81			55.90					19. 38. 44.54	- 2.39	$\gamma$ Aquilæ.
19. 42. 15.19			15.29	4.03	48.74			19. 43. 3.94	- 2.49	$\alpha$ Aquilæ.
19. 46. 44.00			44.11	32.75	48.64			19. 47. 32.76	- 2.55	$\beta$ Aquilæ.
0. 25. 53.41		+ 3.08	53.32			1.00	51.13	0. 26. 44.47	- 4.28	$\Sigma$ 40.
1. 2. 21.52			13.19	5.17	51.98			1. 3. 4.36	- 37.95	Polaris.
1. 23. 55.84			55.78					1. 24. 46.97	- 4.80	* N.P.D. 60°.26'.
1. 57. 27.22			27.20	18.37	51.17					$\alpha$ Arietis.
2. 53. 12.07			12.14	3.42	51.28					$\alpha$ Ceti.
21. 22. 20.35			20.45	14.46	54.01	1.01	53.08			$\beta$ Aquarii.
21. 56. 46.34			46.42	40.39	53.97					$\alpha$ Aquarii.
22. 5. 42.78			42.82					22. 6. 36.83	- 3.26	$\Sigma$ 2878.
22. 38. 47.80			47.90					22. 39. 41.93	- 3.66	Piaz. xxii. 219. f.
22. 48. 4.03			4.05					22. 48. 58.09	- 3.49	$\Sigma$ 2958.
22. 59. 1.51			1.41					22. 59. 55.46	- 3.27	Piazzi xxii. 306.
23. 57. 9.05			8.73					23. 58. 2.82	- 3.87	$\Sigma$ 3062.
1. 2. 19.18	14.67		10.14	3.33	53.19		54.09	1. 3. 4.27	- 36.11	Polaris.
13. 2. 0.09	4.42		9.28	2.98	53.70			1. 3. 3.92	- 35.76	Polaris SP.
1. 40. 29.90		+ 3.78	29.89			1.07	57.18	1. 41. 27.15	- 4.78	A.S.C. 193. <i>np.</i>
1. 57. 21.11			21.10	18.35	57.25					$\alpha$ Arietis.
2. 53. 6.01			6.10	3.43	57.33					$\alpha$ Ceti.
18. 21. 55.93	53.85		51.46	50.60	59.14	1.06	58.30	18. 22. 50.57	+ 45.32	$\delta$ Ursæ Minoris.
22. 38. 42.05			42.19					22. 39. 41.49	- 3.61	Piaz. xxii. 219. p.
22. 47. 58.73			58.78					22. 48. 58.09	- 3.43	$\Sigma$ 2958.
22. 55. 54.83			54.87	54.18	59.31			22. 56. 54.18	- 3.44	$\alpha$ Pegasi.
23. 57. 3.64			3.31					23. 58. 2.67	- 3.74	$\Sigma$ 3062.
1. 23. 47.69			47.63				59.36	1. 24. 47.05	- 4.75	* N.P.D. 60°.26'.
1. 38. 31.61			31.41					1. 39. 30.84	- 5.36	$\Sigma$ 162.
1. 42. 55.51			55.41					1. 43. 54.85	- 5.08	$\Sigma$ 179.
1. 57. 18.98			18.97	18.34	59.37			1. 58. 18.42	- 4.91	$\alpha$ Arietis.
2. 53. 3.81			3.90	3.43	59.53			2. 54. 3.39	- 4.89	$\alpha$ Ceti.
4. 25. 54.11			54.13	53.71	59.58			4. 26. 53.68	- 5.49	Aldebaran.
18. 21. 55.08	53.00		50.61	50.42	59.81			18. 22. 50.78	+ 45.50	$\delta$ Ursæ Minoris.
22. 6. 22.51			22.41			1.02	60.44	22. 7. 23.79	- 2.44	$\Sigma$ 2882.
22. 18. 27.37			27.41					22. 19. 28.80	- 3.14	$\Sigma$ 2905.
22. 20. 57.66			57.75					22. 21. 59.14	- 3.34	37 Pegasi.
22. 55. 52.78			52.82	54.16	61.34			22. 56. 54.24	- 3.42	$\alpha$ Pegasi.
23. 18. 39.28			39.30					23. 19. 40.73	- 3.58	$\Sigma$ 3013.
23. 57. 1.51			0.98					23. 58. 2.44	- 3.68	$\Sigma$ 3062.
1. 15. 11.44			11.34				61.46	1. 16. 12.85	- 4.72	* N.P.D. 55°.6'.
1. 23. 45.46			45.40					1. 24. 46.92	- 4.73	* N.P.D. 60°.26'.
1. 26. 50.50			50.42					1. 27. 51.94	- 4.80	* N.P.D. 57°.58'.
1. 38. 29.40			29.20					1. 39. 30.73	- 5.33	$\Sigma$ 162. p.
1. 42. 53.14			53.04					1. 43. 54.57	- 5.07	$\Sigma$ 179.
1. 46. 44.19			44.30					1. 47. 45.84	- 4.57	A.S.C. 203.
1. 57. 16.79			16.78	18.33	61.55			1. 58. 18.32	- 4.90	$\alpha$ Arietis.
2. 53. 1.74			1.83	3.42	61.59			2. 54. 3.41	- 4.88	$\alpha$ Ceti.
3. 26. 41.73			41.72					3. 27. 43.33	- 5.48	$\eta$ Tauri.

Error of Collimation = - 0".07.

Level Error = - 1".91. From Dec. 3 = - 2".26.

The Meridian Error from Nov. 30 by Polaris and Polaris SP Dec. 3, allowing + 0".86 for loss of clock and change of  $\Delta$ .The Meridian Error by  $\delta$  Ursæ Minoris Dec. 8,  $\delta$  Ursæ Minoris SP Dec. 10, and  $\delta$  Ursæ Minoris Dec. 13, (separated by 36") = - 5".66. That by  $\delta$  Ursæ Minoris Dec. 9 (reduced to Dec. 10 by allowing - 1".25 for loss of clock and change of  $\Delta$ )  $\delta$  Ursæ Minoris SP Dec. 10 and  $\delta$  Ursæ Minoris Dec. 11 = + 5".90. The mean of these is used from Dec. 6.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Dec. 10	Piazzi III. 135.....	31,1	46,0	0,1	15,0	29,9	44,4	3. 35. 59,2		B.
	Σ 520.....	7,6	22,1	36,2	51,0	5,7	20,2	4. 8. 34,7		B.
	(a) Aldebaran.....	10,1	24,0	37,7	52,1	6,0	20,0	4. 26. 34,0		B.
	δ Ursæ Minoris SP...	10.23,7	14.11,3	17.57,2	21.43,7	25.33,3	29.16,2	6. 33. 2,8		B.
Dec. 11	(b) δ Ursæ Minoris.....	11.33,8	15.21,3	19. 3,2	22.53,2	26.38,7	30.26,3	18. 34. 13,6		B.
	α Aquarii.....	57,3	11,3	24,2	38,1	51,2	5,1	21. 58. 17,9		B.
	(c) Σ 2882.....	31,1	48,0	4,2	21,7	38,1	54,9	22. 8. 11,9		B.
	(d) Σ 2905.....	45,3	59,0	12,5	27,0	40,4	54,7	22. 20. 8,3		B.
	37 Pegasi.....	....	30,0	43,3	56,9	10,1	23,3	22. 22. 37,1	- 6,73	B.
	α Pegasi.....	10,0	24,1	37,5	51,7	5,8	19,3	22. 57. 33,0		B.
	(c) Σ 3013.....	56,9	11,4	24,3	38,2	52,2	6,3	23. 20. 20,0		B.
	* N.P.D. 55°. 6'.....	21,1	37,4	54,0	10,3	27,1	43,0	1. 16. 59,7		B.
	* N.P.D. 77°. 40'.....	40,1	53,9	7,4	21,3	35,0	49,1	1. 25. 3,1		B.
	* N.P.D. 57°. 58'.....	1,8	17,5	33,1	49,3	5,0	21,0	1. 28. 37,1		B.
	Σ 162.....	29,1	48,8	8,1	28,1	48,0	8,0	1. 40. 27,6		B.
	A.S.C. 203.....	2,8	16,0	29,3	43,0	56,6	10,0	1. 48. 23,3		B.
Dec. 13	(b) δ Ursæ Minoris.....	11.31,8	15.17,8	18.59,6	22.50,3	....	....	18. 34. 9,4	+ 2. 16,02	B.
	α Pegasi.....	8,1	21,8	35,5	49,3	3,4	17,3	22. 57. 31,1		B.
	(f) Σ 3013.....	....	9,0	22,2	36,0	50,1	4,1	23. 20. 18,0	- 6,98	B.
	34 Piscium.....	....	24,1	38,1	51,9	5,3	19,0	0. 2. 32,9	- 6,83	B.
	(b) 35 Piscium.....	....	....	33,3	47,1	0,9	14,2	0. 7. 28,1	- 13,57	B.
	(g) 38 Piscium.....	32,1	45,7	59,1	13,0	26,4	39,9	0. 9. 53,4		B.
	(b) * N.P.D. 57°. 58'.....	59,7	15,5	....	47,1	3,1	19,0	1. 28. 35,0	- 2,68	B.
	A.S.C. 193.....	39,0	53,5	7,7	22,1	36,7	51,1	1. 42. 5,7		B.
	A.S.C. 203.....	0,6	14,0	26,9	41,0	54,2	8,0	1. 48. 21,2		B.
	α Arietis.....	30,1	44,7	59,2	14,1	28,2	42,9	1. 58. 57,4		B.
	Σ 314.....	33,9	56,1	17,2	39,9	2,1	24,1	2. 42. 46,0		B.
	α Ceti.....	18,2	31,7	45,0	58,8	12,1	26,1	2. 54. 39,1		B.
	d Pleiadum.....	11,1	25,6	40,1	55,0	9,6	24,2	3. 37. 39,1		B.
	Σ 520.....	4,5	18,9	33,1	48,1	2,5	17,1	4. 9. 31,7		B.
	(a) Aldebaran.....	7,1	21,1	35,0	49,1	3,1	17,2	4. 27. 31,2		B.
Dec. 14	(f) * N.P.D. 53°. 37'.....	....	....	32,7	49,4	6,7	23,1	0. 0. 39,9	- 16,68	B.
	35 Piscium.....	5,3	19,1	32,3	46,1	59,9	13,2	0. 7. 27,1		B.
	38 Piscium. <i>nf.</i> .....	31,1	45,0	58,1	11,9	25,3	39,0	0. 9. 52,5		B.
	* N.P.D. 55°. 6'.....	18,1	34,7	51,0	7,2	24,0	40,1	1. 16. 56,7		B.
	* N.P.D. 77°. 40'.....	37,1	51,0	5,0	18,8	32,3	46,1	1. 25. 0,1		B.
	A.S.C. 193.....	38,1	52,3	6,9	21,7	36,0	50,1	1. 42. 5,1		B.
	(h) A.S.C. 203. <i>np.</i> .....	0,3	13,1	26,3	40,1	53,4	7,0	1. 48. 20,3		B.
	α Arietis.....	29,1	43,7	58,1	12,9	27,4	42,1	1. 58. 56,8		B.
	Σ 314.....	33,1	55,0	16,4	39,1	0,9	23,1	2. 42. 45,1		B.
	α Ceti.....	17,6	31,1	44,1	57,7	11,4	24,9	2. 54. 38,2		B.
	d Pleiadum.....	10,2	25,1	39,0	54,2	8,8	23,3	3. 37. 38,2		B.
	h Pleiadum.....	0,9	15,2	29,8	44,3	59,1	13,7	3. 40. 28,9		B.
	(i) Aldebaran.....	5,9	20,1	33,9	48,1	2,3	16,2	4. 27. 30,1		B.
Dec. 16	(b) δ Ursæ Minoris.....	11.28,7	15.15,8	18.57,5	22.48,5	26.33,4	30.20,6	18. 34. 6,8		B.
	Σ 179.....	57,1	14,1	30,2	47,2	4,1	21,0	1. 44. 37,7		B.
	(b) Aldebaran.....	4,4	18,4	32,1	46,4	0,5	14,6	4. 27. 28,4		B.
	(b) β Tauri.....	27,7	43,1	58,1	13,8	29,0	44,3	5. 16. 59,6		B.
Dec. 17	(b) δ Ursæ Minoris SP...	11.17,2	15. 4,6	18.50,5	22.38,2	26.26,3	30. 9,2	6. 33. 56,8		B.
	δ Ursæ Minoris.....	11.27,5	15.14,3	18.56,8	22.47,2	26.32,2	30.19,7	18. 34. 4,8		B.
	(f) Σ 2905.....	39,1	52,9	6,7	21,1	35,0	48,8	22. 20. 2,4		B.
	α Pegasi.....	4,3	18,1	31,9	46,1	0,1	14,0	22. 57. 27,6		B.
	Σ 19.....	32,3	49,1	5,1	22,0	39,1	55,8	0. 9. 12,1		B.
	42 Ceti.....	56,7	10,1	23,2	37,1	50,5	4,0	1. 12. 17,4		B.
	A.S.C. 164.....	22,7	38,0	52,9	8,1	23,0	37,9	1. 22. 52,9		B.
	(k) Piazzi I. 191. <i>sp.</i> .....	52,0	5,6	19,0	32,9	46,4	0,1	1. 44. 13,8		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.Dec. 11, 0<sup>h</sup>. The clock was put forward 1<sup>m</sup>.The Transit was levelled Dec. 16, 2<sup>h</sup>.

(a) Blazing. (b) Cloudy.

(c) Extremely faint.

(d) Probably the following star. See Dec. 10 and 17.

(e) Faint. (f) Very faint.

(g) The observation has been increased 1'.

(h) Written down 'n.' The north star precedes.

(i) Flaming.

(k) Marked 's.' The south star precedes.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR, or PLANET.
A. m. s.	s.	"	s.	s.	s.	s.	s.	A. m. s.	s.	
3.35.15,10 4.7.51,07 4.25.51,98 6.21.44,03	45,93	+ 3,78	15,07 51,06 52,00 48,72	53,72 50,15	61,72 61,43	1,02	61,46	3.36.16,68 4.8.52,69 4.26.53,65 18.22.50,45	- 5,58 - 5,67 - 5,50 + 45,77	Piazzi III. 135. Σ 520. Aldebaran. δ Ursæ Min. SP.
18.22.52,87 21.57.37,87 22.7.21,41 22.19.26,74 22.21.56,72 22.56.51,63 23.19.38,48 1.16.10,37 1.24.21,41 1.27.49,26 1.39.28,24 1.47.43,00	50,79		48,40 37,98 21,31 26,78 56,81 51,67 38,50 10,27 21,46 49,18 28,04 43,11	50,05 40,31	1,65 2,33	1,00	1,46	18.22.50,63 22.7.23,69 22.19.29,17 22.21.59,20 23.19.40,93 1.16.12,78 1.24.23,98 1.27.51,70 1.39.30,57 1.47.43,64	+ 45,87 - 2,43 - 3,12 - 3,33 - 3,57 - 4,71 - 4,52 - 4,79 - 5,32 - 4,56	δ Ursæ Minoris. α Aquarii. Σ 2882. Σ 2905. 37 Pegasi. α Pegasi. Σ 3013. * N.P.D. 55°. 6'. * N.P.D. 77°. 40'. * N.P.D. 57°. 58'. Σ 162. A.S.C. 203.
18.22.49,80 22.56.49,50 23.19.36,23 0.1.51,72 0.6.47,13 0.9.12,80 1.27.47,22 1.41.22,23 1.47.40,84 1.58.13,80 2.41.39,90 2.53.58,72 3.36.54,96 4.8.47,99 4.26.49,12	48,05		45,66 49,56 36,29 51,79 47,24 12,89 47,17 22,26 40,96 13,81 39,68 58,83 54,97 48,00 49,16	49,64 54,12	3,98 4,56	0,93	3,55	18.22.49,92 22.56.54,00 23.19.40,74 0.1.56,27 0.6.51,72 0.9.17,38 1.27.51,71 1.41.26,81 1.47.45,51 1.58.18,37 2.41.44,26 2.54.3,42 3.36.59,59 4.8.52,64 4.26.53,81	+ 46,28 - 3,38 - 3,54 - 3,92 - 3,99 - 3,97 - 4,77 - 4,73 - 4,55 - 4,88 - 6,51 - 4,88 - 5,58 - 5,69 - 5,53	δ Ursæ Minoris. α Pegasi. Σ 3013. 34 Piscium. 35 Piscium. 38 Piscium. * N.P.D. 57°. 58'. A.S.C. 193. A.S.C. 203. α Arietis. Σ 314. α Ceti. d Pleiadum. Σ 520. Aldebaran.
23.59.49,68 0.6.46,14 0.9.11,84 1.16.7,40 1.24.18,63 1.41.21,45 1.47.40,07 1.58.12,87 2.41.38,96 2.53.57,86 3.36.54,11 3.39.44,56 4.26.48,09			49,61 46,23 11,93 7,33 18,70 21,46 40,19 12,88 38,74 57,97 54,12 44,56 48,13	18,31	5,43	0,88	5,39	23.59.55,00 0.6.51,62 0.9.17,33 1.16.12,77 1.24.24,14 1.41.26,91 1.47.45,65 1.58.18,34 2.41.44,23 2.54.3,47 3.36.59,64 3.39.50,08 4.26.53,68	- 3,77 - 3,95 - 3,97 - 4,69 - 4,50 - 4,73 - 4,55 - 4,88 - 6,50 - 4,88 - 5,58 - 5,60 - 5,54	* N.P.D. 53°. 37'. 35 Piscium. 38 Piscium. <i>np.</i> * N.P.D. 55°. 6'. * N.P.D. 77°. 40'. A.S.C. 193. A.S.C. 203. <i>np.</i> α Arietis. Σ 314. α Ceti. d Pleiadum. h Pleiadum. Aldebaran.
18.22.47,33 1.43.47,33 4.26.46,40 5.16.13,63 6.22.57,54	45,58	+ 4,32	42,85 47,29 46,47 13,64 42,32	49,10	6,25	0,77	6,38	18.22.49,82 1.43.54,49	+ 46,82 - 5,01	δ Ursæ Minoris. Σ 179. Aldebaran. β Tauri.
	39,13		49,02	53,76	6,70			18.22.49,67	+ 46,90	δ Ursæ Min. SP.
18.22.46,07 22.19.20,85 22.56.46,02 0.8.22,21 1.11.37,00 1.22.7,93 1.43.32,83	44,32	+ 4,93	41,20 20,96 46,13 22,17 37,19 8,23 32,96	48,94	7,74	0,70	7,20	18.22.48,94 22.19.28,81 22.56.54,00 0.8.30,07 1.11.43,12 1.22.16,19 1.43.40,91	+ 46,98 - 3,06 - 3,34 - 3,83 - 4,31 - 4,29 - 4,58	δ Ursæ Minoris. Σ 2905. α Pegasi. Σ 19. 42 Ceti. A.S.C. 164. Piazzi I. 191. <i>sp.</i>

Error of Collimation = - 0",07.

Level Error = - 2",26. From Dec. 13 = - 1",90.

The three sets of three consecutive transits of δ Ursæ Minoris Dec. 16—18, give for Meridian Error + 4",23, + 4",38, + 4",93. The mean of the two first is used from Dec. 16, and the last from Dec. 17.

Month and Day.	NAME OF STAR or PLANET.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction for Wires omitted.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Dec. 17	$\Sigma$ 221. ....	8,1	22,2	36,1	50,8	5,2	19,3	2. 1. 33,9	+ 0,01	B.
	$\Sigma$ 314. ....	30,9	52,4	14,1	...	58,2	20,9	2. 42. 42,7		B.
	$\alpha$ Ceti ....	15,1	28,3	41,4	55,3	9,1	22,3	2. 54. 35,8		B.
	Piazzi III. 135. ....	24,7	39,1	53,8	9,0	23,2	38,0	3. 36. 53,0		B.
	$h$ Pleiadum ....	58,1	12,8	26,9	42,0	56,7	11,1	3. 40. 26,1		B.
	Aldebaran ....	4,1	17,8	31,3	45,9	59,8	13,8	4. 27. 27,9		B.
	$\beta$ Tauri ....	27,1	42,1	57,0	12,8	28,0	43,5	5. 16. 59,0		B.
	$\delta$ Ursæ Minoris SP ...	11.15,8	15. 3,5	18.49,2	22.34,2	26.26,8	30. 7,2	6. 33. 54,7		B.
Dec. 18	$\delta$ Ursæ Minoris. ....	11.26,7	15.14,3	18.57,4	22.46,6	26.32,7	30.18,4	18. 34. 5,5		B.
	$\alpha$ Pegasi ....	3,7	17,6	31,1	45,2	59,0	13,2	22. 57. 27,1		B.
	(a) * N.P.D. 53°. 37'. ....	56,2	12,8	28,9	46,2	3,0	19,8	0. 0. 37,0		B.
	$\Sigma$ 19. ....	31,8	48,0	4,7	21,6	38,0	54,8	0. 9. 11,2		B.
	55 Piscium. ....	46,3	0,8	15,1	29,5	44,1	58,0	0. 32. 12,8		B.
	65 Piscium. <i>np.</i> ....	32,0	46,9	1,9	17,1	32,1	47,1	0. 42. 2,7		B.
	* N.P.D. 77°. 40'. ....	34,0	47,5	0,9	15,0	28,7	43,2	1. 24. 56,9		B.
	(a) Piazzi I. 191. ....	51,1	5,1	17,9	32,1	45,9	59,2	1. 44. 13,1		B.
	(a) $\Sigma$ 221. ....	7,6	22,0	36,0	50,3	4,7	19,0	2. 1. 33,0		B.
	$\alpha$ Ceti ....	14,2	27,7	41,1	54,7	8,2	21,5	2. 54. 35,1		B.
	$c$ Pleiadum. ....	35,1	50,2	4,8	20,0	34,2	49,1	3. 37. 4,0		B.
	Aldebaran ....	3,1	17,2	30,9	45,1	59,2	13,2	4. 27. 27,1		B.
	$\beta$ Tauri. ....	26,4	42,0	56,7	12,2	27,3	42,9	5. 16. 58,0		B.
	(b) $\alpha$ Andromedæ. ....	19,3	34,5	49,2	5,0	20,2	35,6	0. 0. 50,9		B.
Dec. 21	(c) $\alpha$ Aquarii. ....	49,8	3,2	16,4	30,0	...	...	21. 57. ....	+ 20,20	C.
	(d) $\alpha$ Pegasi. ....	...	...	...	44,2	58,0	11,8	22. 57. 25,6	- 20,86	C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFGH*.  
The Transit was levelled Dec. 21, 23<sup>h</sup>.

(a) Very faint.  
(b) Cloudy.

(c) Hurried. Last wires lost by clouds.  
(d) Cloudy and very bad.



Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock ap- parently Slow.	Adopt- ed losing Rate.	Clock Slow at 0 <sup>h</sup> .	Apparent R.A. from the Observation.	Correc- tion to mean R.A. Jan. 1, 1841.	NAME OF STAR or PLANET.
A. M. A.	A.	"	A.	A.	A.	A.	A.	A. M. A.	A.	
2. 0. 50,80		+ 4,93	50,88			0,70	7,90	2. 0. 58,84	- 4,83	Σ 221.
2. 41. 36,54			36,52					2. 41. 44,30	- 6,48	Σ 314.
2. 53. 55,33			55,50	3,41	7,91			2. 54. 3,48	- 4,87	α Ceti.
3. 36. 8,64			8,73					3. 36. 16,74	- 5,59	Piazzi III. 135.
3. 39. 41,95			41,99					3. 39. 50,00	- 5,61	h Pleiadum.
4. 26. 45,80			45,89	53,78	7,89			4. 26. 53,92	- 5,56	Aldebaran.
5. 16. 12,78			12,79	20,97	8,18			5. 16. 20,84	- 6,21	β Tauri.
6. 22. 35,91	37,50		41,14	48,87	7,73			18. 22. 49,23	+ 47,05	δ Ursæ Min. SP.
18. 22. 45,94	44,19		41,07	48,80	7,73	0,65	7,93	18. 22. 49,50	+ 47,12	δ Ursæ Minoris.
22. 56. 45,27			45,38	54,07	8,69			22. 56. 53,93	- 3,33	α Pegasi.
23. 59. 46,27			46,23					23. 59. 54,81	- 3,70	* N.P.D. 53°.37'.
0. 8. 21,44			21,40				8,58	0. 8. 29,98	- 3,81	Σ 19.
0. 31. 29,52			29,57					0. 31. 38,16	- 4,08	55 Piscium.
0. 41. 17,12			17,14					0. 41. 25,74	- 4,18	65 Piscium. np.
1. 24. 15,17			15,29					1. 24. 23,91	- 4,46	* N.P.D. 77°.40'.
1. 43. 32,05			32,18					1. 43. 40,81	- 4,57	Piazzi I. 191.
2. 0. 50,57			50,45					2. 0. 59,08	- 4,82	Σ 221.
2. 53. 54,64			54,81	3,41	8,60			2. 54. 3,47	- 4,87	α Ceti.
3. 36. 19,62			19,66					3. 36. 28,34	- 5,59	c Pleiadum.
4. 26. 45,11			45,20	53,78	8,58			4. 26. 53,90	- 5,56	Aldebaran.
5. 16. 12,21			12,22	20,98	8,76			5. 16. 20,94	- 6,22	β Tauri.
0. 0. 4,96			4,91	14,61	9,70	0,58	9,70			α Andromedæ.
21. 57. 30,05			30,21	40,23	10,02	0,60	9,42			α Aquarii.
22. 56. 44,04			44,10	54,04	9,94					α Pegasi.

Error of Collimation = - 0',07.

Level Error = - 1'',90. From Dec. 20 = - 2'',80.



APPARENT RIGHT ASCENSIONS  
OF  
POLARIS AND  $\delta$  URSÆ MINORIS,  
AND  
MEAN RIGHT ASCENSIONS OF THE STARS  
OBSERVED IN THE YEAR 1841,  
AS DEDUCED FROM EACH DAY'S OBSERVATION;  
WITH  
A CATALOGUE  
OF THE  
CONCLUDED MEAN RIGHT ASCENSIONS,  
JANUARY 1, 1841.

## POLARIS.

Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1841.	Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1841.
1841.	<i>h. m. s.</i>	<i>h. m. s.</i>	1841.	<i>h. m. s.</i>	<i>h. m. s.</i>
February 18	1 . 1 . 44,58	1 . 2 . 26,89	August 18	1 . 2 . 57,66	1 . 2 . 27,70
March 4	35,33	24,73	19	2 . 57,26	26,71
6	33,83	24,25	20	3 . 1,58	30,40
8	34,21	25,53	21	0,39	28,55
8	33,63	25,14	24	2,06	28,16
9	32,99	24,68	September 9	9,58	27,19
12	31,12	23,60	10	8,85	26,24
12	31,57	24,15	10	10,82	28,21
13	31,95	24,64	13	8,83	25,25
24	31,06	26,37	13	10,49	26,91
25	30,68	26,01	13	9,55	25,84
25	30,27	25,61	14	9,80	25,94
29	30,32	25,66	14	9,12	25,26
April 2	28,91	24,59	23	12,74	25,56
2	30,42	26,14	23	12,84	25,53
3	32,36	28,12	25	13,58	25,95
3	34,70	30,48	25	13,75	26,03
12	32,50	27,05	30	13,28	24,75
14	30,90	25,10	October 2	14,79	25,92
15	32,15	26,29	2	17,31	28,31
15	33,45	27,53	5	15,48	25,85
18	32,45	26,03	6	18,77	28,85
19	32,91	26,35	6	18,72	28,74
19	33,30	26,60	10	19,40	29,36
27	35,17	25,51	12	18,42	28,40
29	36,02	25,77	19	18,29	27,85
30	37,11	26,70	19	18,24	27,81
30	38,19	27,62	25	21,95	32,30
May 10	41,82	26,05	November 8	14,35	27,59
12	43,72	27,22	8	14,23	27,64
12	45,14	28,40	11	14,11	28,24
14	44,82	27,36	12	14,51	28,88
14	44,39	26,69	12	13,38	27,86
15	43,94	25,97	24	8,84	28,27
26	53,03	27,82	24	8,74	28,39
26	54,55	29,05	25	7,82	27,69
27	1 . 56,02	30,22	25	6,14	26,22
June 15	2 . 7,82	27,22	30	4,36	26,41
16	7,49	26,43	December 3	4,27	28,16
16	7,87	26,35	3	3,92	28,16
17	9,00	27,02			

 $\delta$  URSÆ MINORIS.

Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1841.	Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1841.
1841.	<i>h. m. s.</i>	<i>h. m. s.</i>	1841.	<i>h. m. s.</i>	<i>h. m. s.</i>
February 19	18 . 23 . 15,82	18 . 23 . 36,98	December 8	18 . 22 . 50,57	18 . 23 . 35,89
19	16,35	37,37	9	50,78	36,28
August 17	32,18	35,66	10	50,45	36,22
18	31,97	35,76	11	50,63	36,50
19	32,05	36,13	13	49,92	36,20
19	30,88	35,13	16	49,82	36,64
20	29,67	34,09	16	49,67	36,57
21	30,58	35,33	17	48,94	35,92
23	30,47	35,94	17	49,23	36,28
23	30,26	35,91	18	49,50	36,62
24	30,05	35,89			

$\alpha$ ANDROMEDÆ.	A.S.C. 164.	$\alpha$ ARIETIS continued.	$d$ Pleiadum.
Sept. 9..... <sup>h</sup> 0. <sup>m</sup> 0. <sup>s</sup> 10,78	Dec. 17..... <sup>h</sup> 1. <sup>m</sup> 22. <sup>s</sup> 11,90	Nov. 6..... <sup>h</sup> 1. <sup>m</sup> 58. <sup>s</sup> 13,46	Dec. 13..... <sup>h</sup> 3. <sup>m</sup> 36. <sup>s</sup> 54,01
13.....10,87		11.....13,53	14.....54,06
30.....10,90	* N.P.D. 77°.40'.	12.....13,47	
Oct. 2.....10,91	Dec. 11.....1. 24. 19,46	16.....13,50	$f$ Pleiadum.
6.....10,99	14.....19,64	18.....13,51	Mar. 4.....3. 39. 42,93
11.....11,00	18.....19,45	24.....13,56	
Nov. 6.....11,00	* N.P.D. 60°.26'.	25.....13,44	
8.....10,88	Nov. 30.....1. 24. 42,17	Dec. 8.....13,51	$h$ Pleiadum.
11.....10,90	Dec. 8.....42,30	10.....13,42	Feb. 18.....3. 39. 44,32
12.....11,02	10.....42,19	13.....13,49	Dec. 14.....44,48
18.....10,99		14.....13,46	17.....44,39
24.....10,94		$\Sigma$ 221.	
25.....10,93		Dec. 17.....2. 0. 54,01	$\Sigma$ 520.
34 Piscium.	* N.P.D. 57°.58'.	18.....54,26	Feb. 18.....4. 8. 46,85
Dec. 13.....0. 1. 52,35	Dec. 10.....1. 27. 47,14	$\Sigma$ 314.	Dec. 10.....47,02
35 Piscium.	11.....46,91	Dec. 13.....2. 41. 37,75	13.....46,95
Dec. 13.....0. 6. 47,73	13.....46,94	14.....37,73	
14.....47,67	$\Sigma$ 162.	17.....37,82	
$\Sigma$ 19.	Dec. 8.....1. 39. 25,48	$\alpha$ CETI.	ALDEBARAN.
Dec. 17.....0. 8. 26,24	10.....25,40	Sept. 9.....2. 53. 58,53	Mar. 4.....4. 26. 48,26
18.....26,17	11.....25,25	Nov. 16.....58,42	Dec. 8.....48,19
38 Piscium.	A.S.C. 193.	Dec. 8.....58,50	10.....48,15
Dec. 13.....0. 9. 13,41	Dec. 6.....1. 41. 22,37	10.....58,53	15.....48,28
14.....13,36	13.....22,08	13.....58,54	14.....48,14
$\Sigma$ 40.	14.....22,18	17.....58,61	17.....48,36
Nov. 24.....0. 26. 40,35	Piazzi I. 191.	18.....58,60	18.....48,34
25.....40,27	Dec. 17.....1. 43. 36,33	$\eta$ Tauri.	
30.....40,19	18.....36,24	Dec. 10.....3. 27. 37,85	Feb. 18.....4. 48. 26,00
55 Piscium.	$\Sigma$ 179.	$b$ Pleiadum.	Mar. 4.....25,79
Dec. 18.....0. 31. 34,08	Dec. 8.....1. 43. 49,77	Mar. 4.....3. 35. 26,63	6.....25,82
65 Piscium.	10.....49,50	9.....26,61	
Dec. 18.....0. 41. 21,56	16.....49,48	10.....26,63	14 Aurigæ.
42 Ceti.	A.S.C. 203.	$c$ Pleiadum.	Feb. 18.....5. 5. 3,79
Dec. 17.....1. 11. 40,81	Dec. 10.....1. 47. 41,27	Mar. 12.....3. 35. 45,35	25.....3,48
* N.P.D. 55°.0'.	11.....41,08	13.....45,47	Mar. 4.....3,52
Dec. 10.....1. 16. 8,13	13.....40,96	Piazzi III. 135.	6.....3,37
11.....8,07	14.....41,10	Feb. 18.....3. 36. 11,01	$\beta$ TAURI.
14.....8,08	$\alpha$ ARIETIS.	Dec. 10.....11,10	Feb. 18.....5. 16. 14,88
	Sept. 9.....1. 58. 13,52	17.....11,15	Mar. 4.....14,65
	30.....13,48	$c$ Pleiadum.	9.....14,70
	Oct. 2.....13,34	Mar. 13.....3. 36. 22,67	10.....14,57
	6.....13,40	16.....22,38	11.....14,71
	19.....13,49	Dec. 18.....22,75	12.....14,58
			13.....14,67
			16.....14,63
			17.....14,55
			Dec. 17.....14,68
			18.....14,72

<b><math>\theta^1</math> Orionis.</b>	<b>47 Geminorum.</b>	<b><math>\zeta</math> Cancri.</b>	<b>* N.P.D. 68°. 58'.</b>
Mar. 6.....5 . 27 . 27,25 8 27,54 9 27,88 10 27,28	Mar. 9.....7 . 1 . 31,11 10 31,02 11 30,94 12 31,07	Mar. 12.....8 . 3 . 5,26 15 5,19 16 5,12	Mar. 15.....9 . 14 . 48,47 16 48,41 17 48,52
<b><math>\zeta</math> Orionis.</b>	<b>CASTOR.</b>	<b><math>\lambda</math> Cancri.</b>	<b>* N.P.D. 70°. 15'.</b>
Mar. 6.....5 . 32 . 44,27 8 44,45 9 44,88 10 44,37	Mar. 9.....7 . 24 . 26,86 10 26,72 11 26,81 12 26,79 15 26,72 16 26,74 17 26,87 18 26,83 25 26,69	Mar. 9.....8 . 11 . 4,38 10 4,38 12 4,42 15 4,49	Mar. 15.....9 . 17 . 38,77 16 38,57
<b>C Tauri.</b>		<b><math>\nu^1</math> Cancri.</b>	<b><math>\alpha</math> HYDRÆ.</b>
Mar. 6.....5 . 43 . 20,12	Aug. 9 26,75 Sept. 11 26,74	Mar. 9.....8 . 17 . 11,91 10 11,68 12 11,76	Apr. 29.....9 . 19 . 46,36 30 46,43
<b><math>\alpha</math> ORIONIS.</b>	<b>PROCYON.</b>	<b>* N.P.D. 63°. 3'.</b>	May 5 46,35 6 46,38 26 46,40
Mar. 4.....5 . 46 . 34,01 9 33,81 10 34,12 11 33,92 12 34,02 15 33,91 16 34,00 17 33,87 Sept. 11 33,95	Mar. 9.....7 . 30 . 58,64 10 58,59 11 58,55 12 58,61 15 58,72 16 58,61 17 58,72 18 58,47 25 58,63	Mar. 15.....8 . 48 . 16,40	Mar. 17 .....9 . 19 . 56,15 18 56,19 22 56,31
<b>* N.P.D. 69°. 6'.</b>	Apr. 6 58,49	<b>* N.P.D. 68°. 13'.</b>	<b>* N.P.D. 70°. 1'.</b>
Mar. 10.....6 . 19 . 42,80	Aug. 9 58,62	Mar. 16.....8 . 49 . 47,55 17 47,82 18 47,50	Mar. 25.....9 . 20 . 4,20 27 4,20
<b>* N.P.D. 69°. 7'.</b>	Sept. 11 58,60	<b>* N.P.D. 68°. 21'.</b>	<b>* N.P.D. 69°. 51'.</b>
Mar. 11.....6 . 20 . 58,51 15 58,64	<b>c Geminorum.</b>	Mar. 15.....8 . 58 . 37,35 16 37,27	Mar. 16.....9 . 21 . 3,70 Apr. 6 3,98
<b>* N.P.D. 33°. 1'.</b>	Mar. 9.....7 . 34 . 24,66 10 24,54 11 24,48 12 24,57	<b>* N.P.D. 68°. 40'.</b>	<b><math>\nu</math> Leonis.</b>
Mar. 9.....6 . 24 . 7,00 10 7,05 12 7,06	<b><math>\kappa</math> Geminorum.</b>	Mar. 15.....9 . 3 . 38,85 16 38,85	Mar. 15.....9 . 49 . 39,88 16 39,77
<b><math>\Sigma</math> 941.</b>	Mar. 15.....7 . 34 . 50,63 16 50,40 17 50,46	<b>* N.P.D. 68°. 26'.</b>	<b><math>\eta</math> Leonis.</b>
Mar. 15.....6 . 27 . 25,35 16 25,16 17 25,00	<b>POLLUX.</b>	Mar. 18.....9 . 4 . 20,56 22 20,36 25 20,47	Mar. 15.....9 . 58 . 39,44 16 39,31 17 39,60
<b>* N.P.D. 35°. 59'.</b>	Mar. 25.....7 . 35 . 34,65	<b>* N.P.D. 68°. 31'.</b>	<b>REGULUS.</b>
Mar. 9.....6 . 30 . 45,82 10 45,84 11 45,78 12 45,76	Apr. 6 34,80	Mar. 15.....9 . 9 . 33,40 16 33,39	Feb. 18.....9 . 59 . 53,91
<b>Piazzi VI. 301.</b>	Aug. 9 34,64 Sept. 11 34,70	<b>* N.P.D. 68°. 47'.</b>	Mar. 18 53,95 25 53,95
Mar. 9.....6 . 53 . 0,77 10 0,72 11 0,57 12 0,83	<b><math>\omega^1</math> Cancri.</b>	Mar. 17.....9 . 10 . 37,51 18 37,45	Apr. 6 53,86 29 54,02 30 53,77
	Mar. 9.....7 . 51 . 18,27 10 18,01 12 18,15	<b>A.S.C. 1132.</b>	May 1 53,97 5 53,90 6 53,70 18 53,71 23 53,86
		Mar. 22.....9 . 11 . 54,92 25 54,96 27 54,84	

REGULUS <i>continued.</i>	A.S.C. 1322.	Piazzi XI. 126.	* N.P.D. 85°. 4'.
May 26.....9. 59. 53,82 31 53,87	Mar. 25.....11. 5. 45,90 27 45,69	May 5.....11. 30. 16,67	Mar. 22.....12. 3. 32,18
June 10 53,75	April 3 45,93	♄ Virginis.	April 3 32,25 12 32,26
Nov. 27 54,01	φ Leonis.	Mar. 27.....11. 37. 41,09	2 Canum Venaticorum.
Σ 1426.	April 23.....11. 8. 34,79 29 34,83	April 3 41,11 6 41,25	April 21.....12. 8. 8,61 23 8,63 29 8,66
April 26.....10. 12. 12,84 29 12,71	May 1 34,76	* N.P.D. 83°. 14'.	Σ 1632.
45 Leonis.	Σ 1529. p.	April 17.....11. 39. 27,79 19 27,23 20 27,49	May 1.....12. 12. 17,57 6 17,62 12 17,82
Mar. 15.....10. 19. 14,86 16 14,84 17 14,93	May 1.....11. 11. 16,89 5 16,76	β LEONIS.	Σ 1633.
Σ 1447.	Σ 1529. f.	May 1.....11. 40. 56,66 23 56,74	April 23.....12. 12. 40,11 29 40,13
April 29.....10. 25. 3,28	April 23.....11. 11. 17,23 29 17,31	July 29 56,72	May 5 40,08
49 Leonis.	σ Leonis.	Aug. 14 56,83	Σ 1653.
Mar. 17.....10. 26. 41,47 18 41,42 25 41,41	Mar. 25.....11. 12. 56,00 27 55,96	Oct. 10 56,62	May 3.....12. 25. 31,17 6 30,87 14 30,50
35 Sextantis.	April 3 56,16	* N.P.D. 84°. 46'.	Σ 1661.
April 29.....10. 55. 5,54	Σ 1541.	Mar. 27.....11. 50. 21,55	May 1.....12. 27. 58,49 15 58,44 18 58,66
May 1 5,39 6 5,36	April 23.....11. 18. 54,30 29 54,45	April 3 21,67 12 21,75	Piazzi XII. 202.
54 Leonis.	May 1 54,78 5 54,53	* N.P.D. 84°. 54'.	May 1.....12. 44. 2,93 18 2,93
April 21.....10. 46. 59,55 23 59,63 29 59,48	90 Leonis.	Mar. 27.....11. 54. 16,74	Σ 1690.
* N.P.D. 26°. 2'.	May 5.....11. 26. 25,43	April 3 16,90 12 17,14	May 18.....12. 48. 3,37 26 3,34
Mar. 18.....10. 52. 31,05 27 31,05	* N.P.D. 82°. 21'.	2 Comae Berenice.	* N.P.D. 71°. 51'.
April 6 31,01	Mar. 25.....11. 27. 44,87 27 44,63	May 1.....11. 56. 7,83 5 7,65 12 7,81	May 6.....13. 8. 42,32 18 42,50
* N.P.D. 80°. 17'.	April 3 45,01	* N.P.D. 84°. 36'.	SPICA.
April 3 10. 53. 58,16 29 57,98	Σ 1553.	Mar. 27.....11. 59. 24,68	April 29 13. 16. 49,59 30 49,83
Σ 1507.	April 23.....11. 27. 51,99 29 51,79	April 3 24,83 12 24,78	May 1 49,48 5 49,68 6 49,65 18 49,75 23 49,65
April 29.....10. 57. 51,91	May 1 51,84	Σ 1608.	
* N.P.D. 82°. 6'.	* N.P.D. 82°. 51'.	May 12.... 12. 3. 32,03 14 32,11 18 31,87	
April 23.... 10. 57. 54,43 May 1 54,39	April 6.... 11. 29. 6,87 10 6,68 12 6,71		



$\zeta$ Ursæ Majoris.	ARCTURUS.	$\Sigma$ 1886.	* N.P.D. $97^{\circ}.14'$ .
June 3.....13. 17. 30,72	April 29.....14. 8. 24,72 30 24,70	June 3.....14. 43. 21,15 4 21,03 10 21,23	May 26.....15. 6. 55,76 June 10 55,44
* N.P.D. $97^{\circ}.48'$ .	May 1 24,85 5 24,82 6 24,96	$\xi$ Bootis.	$\Sigma$ 1931.
May 5.....13. 25. 58,30 6 58,35 18 58,32	$\Sigma$ 1825.	June 12.....14. 44. 3,62 21 3,60 22 3,34	June 1.....15. 11. 4,39 3 4,73 4 4,50
1 Bootis.	June 1.....14. 9. 9,09 3 9,30 10 9,30	39 Bootis.	$\Sigma$ 1934.
April 29.....13. 33. 4,64 30 4,74	$\Sigma$ 1838.	May 18. ....14. 44. 16,91 26 16,86	June 12.....15. 11. 48,52 21 48,45
May 1 4,75	May 1.....14. 16. 21,51 5 21,60 6 21,62	June 1 17,08	$\eta$ Coronæ Borealis.
84 Virginis.	$\Sigma$ 1858.	$\beta$ Ursæ Minoris.	May 12.....15. 16. 38,39 14 38,35 15 38,37
June 3.....13. 35. 4,45 10 4,36 12 4,32	May 6.....14. 27. 4,24 15 4,29	May 12.....14. 51. 14,54 14 14,37	* N.P.D. $84^{\circ}.4'$ .
$\Sigma$ 1785.	$\pi$ Bootis.	$\Sigma$ 1895.	June 21.....15. 18. 53,60
May 26.....13. 41. 49,44	June 12.....14. 33. 15,50 21 15,38 22 15,19	May 15.....14. 51. 24,07 18 24,12 26 24,21	$\Sigma$ 1950.
June 3 49,60 10 49,46	$\Sigma$ 1873.	$\Sigma$ 1896.	June 12.....15. 23. 10,66 21 10,30 25 10,21
$\Sigma$ 1790.	June 1.....14. 36. 58,94 3 59,05 4 59,14	June 12.....14. 52. 38,01	$\delta$ Serpentis.
April 29.....13. 47. 50,41 30 50,38	$\epsilon$ Bootis.	$\Sigma$ 1904. <i>p</i> .	June 10.....15. 27. 12,67 12 12,88 21 12,85
May 1 50,36	May 18.....14. 38. 2,67 26 2,68	June 14.....14. 56. 13,02	$\alpha$ CORONÆ BOREALIS.
Piazzi XIII. 277.	June 12 2,63 22 2,55	$\Sigma$ 1904. <i>f</i> .	May 26.....15. 27. 57,56 31 57,61
April 29.....13. 53. 5,96 30 5,93	July 17 2,43	44 Bootis. <i>p</i> .	July 17 57,51
May 1 5,60	Aug. 9 2,64	May 18.....14. 58. 32,71	Aug. 9 57,40
$\Sigma$ 1804.	$\Sigma$ 1878.	44 Bootis. <i>f</i> .	Nov. 15 57,49
April 29.....14. 0. 50,11 30 50,41	May 5.....14. 38. 5,79 6 5,82 14 5,87	May 15.....14. 58. 33,19 26 33,07	$\phi$ Libræ.
May 1 50,20	$\Sigma$ 1882.	Piazzi XIV. 279.	May 12.....15. 29. 46,34 14 46,03
$\Sigma$ 1813.	May 15.....14. 40. 7,94	June 3.....14. 59. 52,08 4 52,04 10 51,99	$\chi$ Libræ.
June 3.....14. 5. 27,06			May 15.....15. 30. 53,83 18 53,67
$\kappa$ Bootis.			
May 14.....14. 7. 47,20 15 47,37 18 47,12			

$\alpha$ SERPENTIS.	$\alpha$ Coronæ Borealis.	30 Ophiuchi.	95 Herculis. <i>f</i> .
May 26.....15. 36. 26,50 31 26,40	May 31.....16. 8. 43,46	June 4.....16. 52. 40,88	July 29.....17. 54. 45,85
June 10 26,39 22 26,41	June 1 43,43 3 43,67	$\alpha$ HERCULIS.	Aug. 5 45,94 9 45,95
July 17 26,59	Antares.	July 29.....17. 7. 24,04	Piazzi XVII. 362.
Aug. 9 26,46	May 31.....16. 19. 40,08	Aug. 9 24,14 16 24,03	July 29.....17. 58. 19,88
$\Sigma$ 1985.	$i$ Scorpii.	39 Ophiuchi.	Aug. 9 20,12 16 20,16
June 21.....15. 47. 41,15 22 40,98	June 1.....16. 20. 33,42 3 33,38	June 26.....17. 8. 19,24	* N.P.D. 90°. 26'.
July 8 41,04	$\Sigma$ 2052.	$\Sigma$ 2147.	July 31.....18. 29. 25,97
$\epsilon$ Scorpii.	July 16.....16. 21. 53,14 17 53,20 19 53,28	July 31.....17. 11. 21,56	Aug. 9 26,02
May 18.....15. 50. 56,60 26 56,60	$\lambda$ Ophiuchi.	Piazzi XVII. 94.	* N.P.D. 38°. 23'.
A.S.C. 1840.	July 26.....16. 22. 54,05	July 19.....17. 17. 23,73 29 23,82 31 24,07	July 29.....18. 30. 9,85
May 26.....15. 58. 26,64 31 26,93	Aug. 9 54,21 12 54,19	Aug. 5 24,00	$\epsilon$ Lyrae.
June 1 26,85	$\Sigma$ 2087. <i>p</i> .	$\Sigma$ 2178.	July 31.....18. 39. 4,14
16 Scorpii.	July 19.....16. 35. 54,07	July 9.....17. 23. 47,02 14 46,97 16 47,02	5 Lyrae.
May 31.....16. 3. 30,69	$\Sigma$ 2087. <i>f</i> .	$\alpha$ Ophiuchi.	Aug. 9.....18. 39. 6,52
June 1 30,69	July 17.....16. 35. 54,62	June 10.....17. 27. 33,43 22 33,47	$\Sigma$ 2523.
48 Serpentis.	$l$ Ophiuchi.	July 29 33,32	Sept. 25.....19. 19. 56,24 30 55,83
June 3.....16. 4. 16,96 4 17,01	June 4.....16. 37. 25,33 10 25,27	Aug. 9 33,43 16 33,62	Oct. 2 55,92
T Herculis.	$\Sigma$ 2104.	Sept. 22 33,36	* N.P.D. 62°. 36'.
June 10.....16. 4. 52,14 12 52,20	July 9.....16. 42. 59,53 14 59,74 16 59,73	$\Sigma$ 2213.	Sept. 17.....19. 20. 5,76 18 6,03 23 6,04
49 Serpentis. <i>p</i> .	$\alpha$ Ophiuchi.	July 16.....17. 38. 50,45 17 50,64 29 50,64	Piazzi XIX. 149. <i>p</i> .
June 26.....16. 5. 53,67	June 4.....16. 43. 21,54	* N.P.D. 48°. 10'.	Oct. 5.....19. 21. 57,81 18 57,62
49 Serpentis. <i>f</i>	* N.P.D. 86°. 45'.	June 29.....17. 46. 11,15	Piazzi XIX. 149. <i>f</i> .
June 25 16. 5. 53,94	June 10.....16. 45. 17,61 26 17,56	95 Herculis. <i>p</i> .	Oct. 9 19. 21. 58,39
July 8 54,16		July 28.....17. 54. 45,43	$\Sigma$ 2556.
$\epsilon$ Ophiuchi.			Sept. 17.....19. 32. 36,45 18 36,47 22 36,48
Aug. 9 16. 6. 1,04 16 1,06			

$\gamma$ Aquilæ.	$\psi$ Cygni.	$\Sigma$ 2635.	$\Sigma$ 2666.
Nov. 28.....19 . 38 . 42,15	Sept. 17.....19 . 51 . 30,80	Oct. 18.....20 . 2 . 25,99	Oct. 5.....20 . 12 . 29,03
$\Sigma$ 2576.	Oct. 5 30,87 9 31,10	Nov. 8 26,10	18 29,12
Sept. 17.....19 . 39 . 31,08	$\Sigma$ 2606.	Piazzi XX. 26.	Nov. 11 29,01
18 31,04	Sept. 23.....19 . 52 . 24,45	Sept. 17.....20 . 4 . 28,71	$\Sigma$ 2668.
22 30,89	Oct. 18 24,38	30 28,48	Sept. 25.....20 . 14 . 29,59
$\delta$ Cygni.	19 24,42	Oct. 19 28,42	Oct. 2 29,62
Sept. 25.....19 . 40 . 0,20	$\Sigma$ 2609.	22 28,44	9 29,76
Oct. 2 0,12	Oct. 2.....19 . 52 . 50,22	Nov. 11 28,35	$\Sigma$ 2681.
5 0,26	20 50,52	$\Sigma$ 2643.	Oct. 5.....20 . 18 . 32,39
$\pi$ Aquilæ.	Nov. 8 50,33	Sept. 18.....20 . 4 . 28,90	11 32,49
Sept. 23.....19 . 41 . 12,60	$\Sigma$ 2610.	23 28,84	19 32,55
Oct. 9 12,47	Oct. 22.....19 . 53 . 10,38	Oct. 2 26,66	Piazzi XX. 177.
18 12,38	$\Sigma$ 2613.	$\Sigma$ 2651.	Sept. 17.....20 . 23 . 36,63
$\alpha$ Aquilæ.	Sept. 25.....19 . 53 . 51,65	Oct. 20.....20 . 6 . 27,59	18 36,47
Feb. 17.....19 . 43 . 1,44	$\Sigma$ 2611.	Nov. 8 27,84	22 36,59
Aug. 18 1,59	Sept. 18.....19 . 54 . 3,19	$\Sigma$ 2653.	$\Sigma$ 2695.
19 1,65	Oct. 12 3,40	Sept. 17.....20 . 6 . 51,21	Oct. 2.....20 . 25 . 10,11
20 1,67	$\Sigma$ 2616.	18 51,05	5 10,24
21 1,54	Sept. 17.....19 . 55 . 24,61	23 51,19	9 10,19
24 1,53	23 24,84	$\Sigma$ 2658.	$\Sigma$ 2702.
26 1,54	Oct. 5 24,90	Oct. 2.....20 . 9 . 26,86	Sept. 25.....20 . 29 . 22,90
27 1,64	$\Sigma$ 2619.	9 27,13	30 22,66
Sept. 21 1,56	Oct. 2.....19 . 56 . 19,44	11 26,88	Oct. 2 22,66
Oct. 19 1,50	18 19,75	$\Sigma$ 2659.	$\Sigma$ 2708.
20 1,57	$\Sigma$ 2624.	Sept. 17.....20 . 10 . 19,83	Sept. 25.....20 . 32 . 39,60
Nov. 28 1,45	Sept. 18.....19 . 57 . 33,46	23 19,77	30 39,47
$\beta$ Aquilæ.	25 33,16	$\Sigma$ 2665.	Oct. 2 39,65
Aug. 18.....19 . 47 . 30,26	30 33,19	Sept. 18.....20 . 11 . 57,01	$\Sigma$ 2720.
19 30,21	$\Sigma$ 2631.	22 56,90	Oct. 9.....20 . 36 . 8,52
20 30,25	Oct. 9.....20 . 0 . 14,68	30 56,77	11 8,00
21 30,21	$\Sigma$ 2667. p.	$\Sigma$ 2667. f.	Nov. 6 7,87
24 30,25	Oct. 20.....20 . 12 . 20,41	Oct. 22.....20 . 12 . 21,01	$\Sigma$ 2723.
26 30,18	$\Sigma$ 2667. f.	Nov. 8 21,01	Oct. 19.....20 . 37 . 20,55
Sept. 21 30,23	Oct. 22.....20 . 12 . 21,01		20 20,27
Oct. 19 30,11			Nov. 8 20,34
20 30,09			$\Sigma$ 2725.
Nov. 28 30,21			Sept. 17.....20 . 38 . 48,83
* N.P.D. 67°. 59'.			18 48,57
Sept. 17.....19 . 47 . 52,43			22 48,88
18 52,54			
23 52,66			
25 52,68			

<b><math>\gamma</math> Delphini.</b>	<b><math>\Sigma</math> 2789.</b>	<b><math>\mu</math> Cygni.</b>	<b><math>\Sigma</math> 2878.</b>
Oct. 2..... <sup>h</sup> 20. <sup>m</sup> 39. <sup>s</sup> 17,32	Nov. 6..... <sup>h</sup> 21. <sup>m</sup> 14. <sup>s</sup> 51,52	Nov. 12..... <sup>h</sup> 21. <sup>m</sup> 37. <sup>s</sup> 2,10	Nov. 25..... <sup>h</sup> 22. <sup>m</sup> 6. <sup>s</sup> 33,56
5.....16,96	11.....51,45	24.....2,13	
9.....17,19	12.....51,36	25.....2,13	Dec. 3.....33,57
<b><math>\Sigma</math> 2738.</b>	<b><math>\beta</math> AQUARI.</b>	<b><math>\Sigma</math> 2834.</b>	<b><math>\Sigma</math> 2881.</b>
Nov. 6.....20. 51. 7,80	Aug. 14.....21. 23. 11,08	Nov. 18.....21. 44. 11,89	Nov. 6.....22. 7. 19,98
24.....7,87	16.....11,13	20.....11,83	
25.....8,23	18.....11,09		<b><math>\Sigma</math> 2882.</b>
<b>Piazzi XX. 429.</b>	19.....11,11		Nov. 24.....22. 7. 21,34
Oct. 7.....20. 53. 24,34	20.....11,14	<b><math>\Sigma</math> 2840.</b>	Dec. 10.....21,35
11.....24,53	21.....11,15	Nov. 8.....21. 46. 38,46	11.....21,26
18.....24,35	24.....11,32		
<b>* N.P.D. 56°. 30'.</b>	27.....11,18	<b><math>\Sigma</math> 2848.</b>	<b><math>\Sigma</math> 2889.</b>
Nov. 12.....21. 0. 43,98	Sept. 6.....11,10	Nov. 20.....21. 50. 3,61	Nov. 8.....22. 8. 58,00
24.....44,27	8.....11,13	24.....3,43	10.....57,95
	16.....11,22	25.....3,50	12.....57,86
	17.....11,24		
<b><math>\Sigma</math> 2747. p.</b>	18.....11,15	<b><math>\alpha</math> AQUARI.</b>	<b>33 Pegasi.</b>
Sept. 23.....20. 56. 8,89	21.....11,15	Aug. 14.....21. 57. 37,01	Nov. 18.....22. 16. 0,95
	22.....11,10	16.....37,00	20.....0,93
	23.....11,15	18.....36,98	24.....0,94
	30.....11,13	19.....36,99	
	Oct. 2.....11,14	20.....36,87	<b><math>\Sigma</math> 2902.</b>
	11.....11,20	21.....37,05	Nov. 8.....22. 16. 54,23
	19.....11,18	24.....36,86	10.....54,42
	20.....11,18	26.....37,05	12.....54,27
	Nov. 6.....11,13	27.....36,91	
	8.....11,13	Sept. 6.....37,01	<b><math>\Sigma</math> 2903. p.</b>
<b><math>\Sigma</math> 2747. f.</b>	10.....11,30	8.....36,99	<b><math>\Sigma</math> 2905. p.</b>
Sept. 17.....20. 56. 9,57	11.....11,04	13.....37,02	Dec. 10.....22. 19. 25,66
18.....9,39	12.....11,13	16.....36,93	17.....25,75
	18.....10,99	17.....37,00	
	24.....11,00	18.....37,02	<b><math>\Sigma</math> 2905. f.</b>
	25.....11,17	21.....37,03	Dec. 11.....22. 19. 26,03
<b><math>\Sigma</math> 2750.</b>	<b><math>\Sigma</math> 2813. p.</b>	22.....37,08	
Nov. 6.....20. 57. 25,82	Oct. 19.....21. 31. 8,45	23.....37,08	<b>37 Pegasi.</b>
8.....26,05		30.....37,00	Nov. 25.....22. 21. 55,53
18.....26,06	<b><math>\Sigma</math> 2813. f.</b>	Nov. 8.....37,06	Dec. 10.....55,80
<b><math>\Sigma</math> 2757.</b>	Nov. 8.....21. 31. 9,52	10.....36,93	11.....55,87
Oct. 7.....20. 59. 36,99	<b><math>\Sigma</math> 2815.</b>	12.....37,00	
18.....36,94	Nov. 20.....21. 32. 47,08	18.....36,94	<b><math>\Sigma</math> 2916.</b>
19.....37,07	<b>Piazzi XXI. 248.</b>	25.....36,95	Nov. 18.....22. 24. 23,66
20.....37,24	Sept. 22.....21. 34. 1,46	<b><math>\Sigma</math> 2861.</b>	20.....23,96
<b><math>\Sigma</math> 2759.</b>	23.....1,66	Oct. 19.....21. 38. 31,63	24.....23,54
Nov. 25.....20. 59. 52,11	30.....1,43	20.....31,49	
<b><math>\Sigma</math> 2760.</b>	Oct. 18.....1,80	Nov. 6.....31,82	<b>A.S.C. 2697.</b>
Nov. 11.....21. 0. 17,12	20.....1,93		Sept. 23.....22. 26. 27,86
<b><math>\Sigma</math> 2769.</b>	<b>Piazzi XXI. 256.</b>	<b>Piazzi XXII. 11.</b>	
Nov. 6.....21. 3. 22,32	Oct. 19.....21. 35. 25,40	Nov. 18.....22. 3. 15,47	
8.....22,43	Nov. 8.....23,22	20.....15,62	
18.....22,53	18.....23,66	24.....15,41	

A.S.C. 2697. <i>continued.</i>	Piazzi XXII. 219. <i>f.</i>	$\alpha$ PEGASI <i>continued.</i>	$\Sigma$ 3013.
Oct. 16..... <sup><i>h. m. s.</i></sup> 22 . 26 . 27,97	Nov. 25..... <sup><i>h. m. s.</i></sup> 22 . 39 . 38,36	Oct. 2 <sup><i>h. m. s.</i></sup> 50,84	Dec. 10..... <sup><i>h. m. s.</i></sup> 23 . 19 . 37,15
Nov. 8               27,90	Dec. 3               38,27	6               50,68	11               37,36
10               27,78		19               50,78	13               37,20
25               27,84		20               50,84	
	$\Sigma$ 2958.	Nov. 6               50,63	$\Sigma$ 3062.
$\eta$ Aquarii.	Nov. 25.....22 . 48 . 54,76	8               50,69	
	Dec. 3               54,60	10               50,72	Dec. 3.....23 . 57 . 58,95
	8               54,66	12               50,64	8               58,93
Oct. 19..... <sup><i>h. m. s.</i></sup> 22 . 27 . 11,12		18               50,81	10               58,76
20               11,21	$\alpha$ PEGASI.	Dec. 8               50,74	
Nov. 12               11,07	Sept. 6.....22 . 56 . 50,82	10               50,82	Piazzi XXIII. 276.
	8               50,82	13               50,62	Sept. 9.....23 . 58 . 22,44
	13               50,75	17               50,66	
Piazzi XXII. 219. <i>p.</i>	16               50,77	18               50,60	
	17               50,70		
	18               50,76	Piazzi XXII. 306.	* N.P.D. 53° . 37'.
Dec. 8.....22 . 39 . 37,88	23               50,70	Nov. 24.....22 . 59 . 52,37	
	30               50,73	25               52,27	Dec. 14.....23 . 59 . 51,23
		Dec. 3               52,19	18               51,11

CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS, JAN. 1, 1841;  
WITH THE ANNUAL VARIATIONS.

Name of Star.	Approximate N.P.D. Jan. 1, 1841.	Number of Observations.	Mean R.A. Jan. 1, 1841.	Annual Variation.	Name of Star.	Approximate N.P.D. Jan. 1, 1841.	Number of Observations.	Mean R.A. Jan. 1, 1841.	Annual Variation.
	" "		h. m. s.	"		" "		h. m. s.	"
$\alpha$ ANDROMEDÆ.....	61.47	13	0. 0. 10.93	+ 3,071	* (Mag. 8.).....	70. 1	2	9. 20. 4.20	+ 3,383
34 Piscium. p.....	79.44	1	0. 1. 52.35	+ 3,072	* (Mag. 9.).....	69.51	2	9. 21. 3.84	+ 3,384
35 Piscium. p.....	82. 4	2	0. 6. 47.70	+ 3,076	$\nu$ Leonis.....	76.48	2	9. 49. 39.80	+ 3,239
$\Sigma$ 19. p.....	54.15	2	0. 8. 26.20	+ 3,106	$\eta$ Leonis.....	72.28	3	9. 58. 39.45	+ 3,284
38 Piscium. f.....	82. 1	2	0. 9. 13.38	+ 3,078	REGULUS.....	77.15	15	9. 59. 53.87	+ 3,222
$\Sigma$ 40. f.....	54. 3	3	0. 26. 40.27	+ 3,183	$\Sigma$ 1426. p.....	82.46	2	10. 12. 12.78	+ 3,147
55 Piscium. f.....	69.26	1	0. 31. 34.08	+ 3,139	45 Leonis.....	79.26	3	10. 19. 11.88	+ 3,177
63 Piscium. p.....	63. 9	1	0. 41. 21.56	+ 3,192	$\Sigma$ 1447. p.....	65.50	1	10. 25. 3.28	+ 3,312
POLARIS.....	1.32	81	1. 2. 26.91	+16,604	49 Leonis. p.....	80.32	3	10. 26. 41.43	+ 3,159
42 Ceti. f.....	91.21	1	1. 11. 40.81	+ 3,061	35 Sextantis. f.....	84.25	3	10. 35. 5.43	+ 3,118
* (Mag. 7.).....	55. 6	3	1. 16. 8.09	+ 3,375	54 Leonis. p.....	64.24	3	10. 46. 59.56	+ 3,271
A.S.C. 164.....	116.26	1	1. 22. 11.90	+ 2,837	* (Mag. 8.).....	26. 2	3	10. 52. 31.04	+ 3,865
* (Mag. 7, 8.).....	77.40	3	1. 24. 19.52	+ 3,176	* (Mag. 8.).....	80.17	2	10. 53. 58.07	+ 3,136
* (Mag. 7, 8.).....	60.26	3	1. 24. 42.22	+ 3,344	* (Mag. 7, 8.).....	82. 6	1	10. 57. 51.91	+ 3,121
* (Mag. 7.).....	57.58	3	1. 27. 47.00	+ 3,383	$\Sigma$ 1507. p.....	82. 0	2	10. 57. 54.41	+ 3,121
$\Sigma$ 162. p.....	42.54	3	1. 39. 25.38	+ 3,675	A.S.C. 1322.....	81. 4	3	11. 5. 45.84	+ 3,120
A.S.C. 193. p.....	68.31	3	1. 41. 22.21	+ 3,296	$\phi$ Leonis.....	92.47	3	11. 8. 34.79	+ 3,056
Piazzi. I. 191. p.....	79.58	2	1. 43. 36.28	+ 3,174	$\Sigma$ 1529. {p.....	90.47	2	11. 11. 16.83	+ 3,067
$\Sigma$ 179. p.....	53.28	3	1. 43. 49.58	+ 3,504	{f.....	90.47	2	11. 11. 17.27	+ 3,067
A.S.C. 203.....	88.56	4	1. 47. 41.10	+ 3,082	$\alpha$ Leonis.....	83. 6	3	11. 12. 56.04	+ 3,103
$\alpha$ ARCTURUS.....	67.18	16	1. 58. 13.47	+ 3,346	$\Sigma$ 1541. p.....	42.50	4	11. 18. 54.51	+ 3,328
$\Sigma$ 221. p.....	70.24	2	2. 0. 54.13	+ 3,310	90 Leonis. f.....	72.20	1	11. 26. 25.43	+ 3,133
$\Sigma$ 314.....	37.40	3	2. 41. 37.77	+ 4,193	* (Mag. 8.).....	82.21	3	11. 27. 44.84	+ 3,096
$\alpha$ CRETÆ.....	86.32	8	2. 53. 58.54	+ 3,126	$\Sigma$ 1553. p.....	32.59	3	11. 27. 51.87	+ 3,358
9 Tauri.....	67.19	1	3. 27. 37.85	+ 3,510	* (Mag. 8.).....	82.51	3	11. 29. 6.75	+ 3,093
b Pleiadum.....	66.24	3	3. 35. 26.62	+ 3,542	Piazzi XI. 126. f.....	91.33	1	11. 30. 16.67	+ 3,066
c Pleiadum.....	66. 2	2	3. 35. 45.41	+ 3,551	$\nu$ Virginis.....	82.35	3	11. 37. 41.15	+ 3,087
Piazzi III. 135.....	66.10	3	3. 36. 11.09	+ 3,549	* (Mag. 9.).....	83.14	3	11. 39. 27.50	+ 3,085
c Pleiadum.....	66. 8	3	3. 36. 22.60	+ 3,550	$\beta$ Leonis.....	74.32	5	11. 40. 56.71	+ 3,066
d Pleiadum.....	66.33	2	3. 36. 51.04	+ 3,541	* (Mag. 9.).....	84.46	3	11. 50. 21.66	+ 3,076
f Pleiadum.....	66.26	1	3. 39. 42.93	+ 3,548	* (Mag. 9.).....	84.54	3	11. 54. 16.93	+ 3,073
A Pleiadum.....	66.21	3	3. 39. 44.40	+ 3,550	2 Comæ Berenices. f.....	67.39	3	11. 56. 7.76	+ 3,080
$\Sigma$ 320.....	67.35	3	4. 8. 46.94	+ 3,558	* (Mag. 7.).....	84.36	3	11. 59. 24.76	+ 3,071
ALDEBARAN.....	73.49	7	4. 26. 48.25	+ 3,427	$\Sigma$ 1608. f.....	35.41	3	12. 3. 32.01	+ 3,042
k Tauri.....	65.12	3	4. 48. 25.90	+ 3,658	* (Mag. 7, 8.).....	85. 4	3	12. 3. 32.23	+ 3,069
14 Aurigæ f.....	57.30	4	5. 5. 3.54	+ 3,898	2 Canum Venat. f.....	48.27	3	12. 8. 8.63	+ 3,028
$\beta$ TAURI.....	61.32	11	5. 16. 14.66	+ 3,782	$\Sigma$ 1632. f.....	54.13	3	12. 12. 17.67	+ 3,013
$\theta$ Orionis. p.....	95.30	4	5. 27. 27.36	+ 2,943	$\Sigma$ 1633. p.....	62. 5	3	12. 12. 40.11	+ 3,031
$\zeta$ Orionis. p.....	92. 2	4	5. 32. 44.37	+ 3,023	$\Sigma$ 1655. f.....	57. 5	3	12. 25. 50.55	+ 2,974
$\zeta$ Tauri.....	62.26	1	5. 43. 20.12	+ 3,767	$\Sigma$ 1661. p.....	77.43	3	12. 27. 58.53	+ 3,035
$\alpha$ ORIONIS.....	82.38	9	5. 46. 33.96	+ 3,243	Piazzi XII. 202. f.....	69.58	2	12. 41. 2.93	+ 2,977
* (Mag. 9.).....	69. 6	1	6. 19. 42.80	+ 3,579	$\Sigma$ 1690. p.....	94. 0	2	12. 48. 3.36	+ 3,080
* (Mag. 8.).....	69. 7	2	6. 20. 58.57	+ 3,578	* (Mag. 7, 8.).....	71.51	2	13. 8. 42.41	+ 2,941
* (Mag. 6, 7.).....	33. 1	3	6. 24. 7.04	+ 3,117	SPICA.....	100.20	7	13. 16. 49.66	+ 3,151
$\Sigma$ 941. p.....	48.17	3	6. 27. 25.17	+ 4,254	$\zeta$ URAN. Majoris. p.....	34.15	1	13. 17. 30.72	+ 2,419
* (Mag. 8.).....	35.59	4	6. 30. 45.80	+ 4,895	* (Mag. 7, 8.).....	97.48	3	13. 25. 58.32	+ 3,138
Piazzi VI. 301. p.....	37. 1	4	6. 53. 0.72	+ 4,796	$\beta$ Bootis. p.....	69.11	3	13. 33. 4.71	+ 2,870
47 Geminorum.....	62.53	4	7. 1. 13.04	+ 3,731	84 Virginis. f.....	85.39	3	13. 35. 4.38	+ 3,029
CASTOR. f.....	57.46	11	7. 24. 26.77	+ 3,857	$\Sigma$ 1785. p.....	62.13	3	13. 41. 49.50	+ 2,768
PROCYON.....	84.22	12	7. 30. 58.60	+ 3,145	$\Sigma$ 1790. p.....	93.70	3	13. 47. 50.38	+ 3,111
c Geminorum.....	63.51	4	7. 34. 24.56	+ 3,672	Piazzi XIII. 277. p.....	36. 7	3	13. 53. 5.84	+ 2,902
$\alpha$ Geminorum.....	65.14	3	7. 34. 50.50	+ 3,635	$\Sigma$ 1804. p.....	68. 3	3	14. 0. 50.24	+ 2,799
POLLUX.....	61.36	4	7. 35. 34.70	+ 3,684	$\Sigma$ 1813. p.....	84.51	1	14. 5. 27.06	+ 2,995
$\alpha'$ CANCRI.....	64.11	3	7. 51. 18.14	+ 3,642	$\alpha$ Bootis. f.....	37.28	3	14. 7. 47.23	+ 2,147
$\zeta$ CANCRI. p.....	71.53	3	8. 3. 5.19	+ 3,446	ANCUTENUS.....	69.59	5	14. 8. 24.81	+ 2,734
$\lambda$ CANCRI.....	65.29	4	8. 11. 4.32	+ 3,583	$\Sigma$ 1825. f.....	69. 8	3	14. 9. 0.27	+ 2,798
$\alpha'$ CANCRI. p.....	64.57	3	8. 17. 11.78	+ 3,587	$\Sigma$ 1838. f.....	78. 2	3	14. 16. 21.58	+ 2,912
* (Mag. 8.).....	68. 5	1	8. 43. 16.40	+ 3,471	$\Sigma$ 1853. p.....	53.43	2	14. 27. 1.26	+ 2,483
* (Mag. 7, 8.).....	68.13	3	8. 49. 47.62	+ 3,465	$\alpha$ Bootis. p.....	72.54	3	14. 33. 15.36	+ 2,815
* (Mag. 9.).....	68.21	2	8. 58. 37.31	+ 3,448	$\Sigma$ 1873. p.....	81.37	3	14. 36. 59.04	+ 2,946
* (Mag. 8, 9.).....	68.40	2	9. 3. 38.85	+ 3,454	$\alpha$ Bootis. f.....	62.15	6	14. 38. 2.60	+ 2,623
* (Mag. 9.).....	68.26	3	9. 4. 20.46	+ 3,437	$\Sigma$ 1878. f.....	28. 4	1	14. 38. 5.83	+ 1,475
* (Mag. 9.).....	68.31	2	9. 9. 33.40	+ 3,427	$\Sigma$ 1892. p.....	28.14	1	14. 40. 7.94	+ 1,469
* (Mag. 7, 8.).....	68.47	2	9. 10. 37.48	+ 3,420	$\Sigma$ 1896. f.....	70.37	3	14. 43. 21.14	+ 2,910
A.S.C. 1152.....	64.10	3	9. 11. 54.91	+ 3,504	$\zeta$ Bootis. f.....	70.11	3	14. 44. 3.52	+ 2,755
* (Mag. 7.).....	68.58	3	9. 14. 48.47	+ 3,410	39 Bootis. p.....	40.37	3	14. 44. 16.95	+ 2,046
* (Mag. 7).....	70.15	2	9. 17. 38.67	+ 3,383	$\beta$ URAN. Minoris.....	15.12	2	14. 51. 14.46	+ 2,275
$\alpha$ HYDRÆ.....	97.58	5	9. 19. 46.38	+ 2,950	$\Sigma$ 1895. p.....	49.12	3	14. 51. 24.13	+ 2,286
$\alpha$ LEONIS.....	80.15	5	9. 19. 56.22	+ 3,218	$\Sigma$ 1896. f.....	45.19	1	14. 52. 38.01	+ 2,166

Name of Star.	Approximate N.P.D. Jan. 1, 1841.	Number of Observations.	Mean R.A. Jan. 1, 1841.	Annual Variation.	Name of Star.	Approximate N.P.D. Jan. 1, 1841.	Number of Observations.	Mean R.A. Jan. 1, 1841.	Annual Variation.
	" "		h. m. s.	s.		" "		h. m. s.	s.
Σ 1904. {p. ....	83. 53	1	14. 56. 13.02	+ 2,971	Σ 2616. f. ....	75. 51	3	19. 55. 24.78	+ 2,775
44 Bootis. {f. ....	83. 53	2	14. 56. 13.32	+ 2,971	* (Mag. 7, 8.) ....	74. 59	1	19. 55. 44.89	+ 2,756
Piazzi XIV. 279. f.	41. 43	1	14. 58. 32.71	+ 2,017	Σ 2619. p. ....	42. 11	2	19. 56. 19.60	+ 1,781
* (Mag. 7, 8.) ....	41. 43	2	14. 58. 33.13	+ 2,017	Σ 2624. p. ....	54. 25	3	19. 57. 33.27	+ 2,237
Σ 1931. p. ....	80. 10	3	14. 59. 52.04	+ 2,907	Σ 2631. f. ....	69. 21	1	20. 0. 14.68	+ 2,634
Σ 1934. p. ....	97. 14	2	15. 6. 55.60	+ 3,194	Σ 2635. p. ....	82. 1	2	20. 2. 26.05	+ 2,909
η Coronæ Borealis.	78. 59	3	15. 11. 4.54	+ 2,878	Piazzi XX. 26. p.	89. 36	5	20. 4. 28.48	+ 3,062
* (Mag. 7, 8.) ....	45. 37	2	15. 11. 48.48	+ 2,099	Σ 2643. p. ....	93. 28	3	20. 4. 28.80	+ 3,140
Σ 1950. p. ....	59. 8	3	15. 16. 38.37	+ 2,466	Σ 2651. ....	74. 19	2	20. 6. 27.71	+ 2,751
ε Serpentis. f. ....	84. 12	1	15. 18. 53.60	+ 2,964	Σ 2653. f. ....	66. 14	3	20. 6. 51.15	+ 2,570
α Coronæ Bor.	63. 57	3	15. 23. 10.39	+ 2,564	Σ 2658. p. ....	37. 22	3	20. 9. 26.96	+ 1,592
φ Libræ. ....	78. 55	3	15. 27. 12.80	+ 2,865	Σ 2659. f. ....	46. 50	2	20. 10. 19.80	+ 2,014
χ Libræ. ....	62. 45	5	15. 27. 57.51	+ 2,528	Σ 2665. p. ....	76. 7	3	20. 11. 56.89	+ 2,793
α Serpentis. ....	108. 46	2	15. 29. 46.18	+ 3,431	Σ 2667. {p. ....	44. 51	1	20. 12. 20.41	+ 1,944
Σ 1985. f. ....	113. 18	2	15. 30. 53.75	+ 3,529	{f. ....	44. 51	2	20. 12. 21.01	+ 1,944
δ Scorpion. ....	83. 4	6	15. 36. 26.46	+ 2,939	Σ 2666. f. ....	49. 46	3	20. 12. 29.05	+ 2,123
A.S.C. 1840. ....	91. 41	3	15. 47. 41.06	+ 3,103	Σ 2668. f. ....	51. 6	3	20. 14. 29.66	+ 2,172
16 Scorpion. ....	112. 10	2	15. 50. 56.60	+ 3,531	Σ 2681. f. ....	37. 6	3	20. 18. 32.48	+ 1,616
48 Serpentis. ....	115. 54	3	15. 58. 26.81	+ 3,631	Piazzi XX. 177. p.	79. 16	3	20. 23. 36.56	+ 2,865
T Herculis. ....	98. 8	2	16. 3. 30.69	+ 3,237	Σ 2695. p. ....	64. 44	3	20. 25. 10.18	+ 2,562
49 Serpentis. {p. ....	72. 55	2	16. 4. 16.98	+ 2,711	Σ 2702. f. ....	55. 23	3	20. 29. 22.74	+ 2,337
{f. ....	66. 5	2	16. 4. 52.17	+ 2,551	Σ 2708. f. ....	51. 55	3	20. 32. 39.57	+ 2,247
δ Ophiuchi. ....	76. 3	1	16. 5. 53.67	+ 2,779	Σ 2720. f. ....	73. 37	3	20. 36. 8.13	+ 2,765
σ Coronæ Borealis.	76. 3	2	16. 5. 54.05	+ 2,779	Σ 2723. p. ....	78. 16	3	20. 37. 20.39	+ 2,856
Antares. ....	93. 17	2	16. 6. 1.05	+ 3,138	Σ 2725. f. ....	74. 40	3	20. 38. 48.76	+ 2,788
i Scorpion. ....	55. 44	3	16. 8. 43.52	+ 2,265	γ Delphini. f. ....	71. 27	3	20. 39. 17.16	+ 2,785
Σ 2032. p. ....	116. 4	1	16. 19. 40.08	+ 3,663	Σ 2738. f. ....	74. 10	3	20. 51. 7.97	+ 2,792
λ Ophiuchi. f. ....	114. 45	2	16. 20. 33.40	+ 3,630	Piazzi XX. 429. p.	40. 9	3	20. 53. 24.41	+ 1,918
Σ 2087. {p. ....	71. 15	3	16. 21. 53.21	+ 2,658	Σ 2747. {p. ....	52. 58	1	20. 56. 8.89	+ 2,345
{f. ....	87. 40	3	16. 22. 54.15	+ 3,021	{f. ....	52. 58	2	20. 56. 9.48	+ 2,345
ι Ophiuchi. ....	66. 2	1	16. 35. 54.07	+ 3,516	Σ 2750. f. ....	77. 54	3	20. 57. 25.98	+ 2,866
Σ 2104. p. ....	66. 2	1	16. 35. 54.62	+ 3,516	Σ 2757. f. ....	38. 14	4	20. 59. 37.06	+ 1,868
21 Ophiuchi. ....	88. 41	2	16. 37. 25.30	+ 3,042	Σ 2759. f. ....	58. 11	1	20. 59. 52.11	+ 2,484
* (Mag. 8, 9.) ....	53. 48	3	16. 42. 59.67	+ 2,147	Σ 2760. p. ....	56. 30	1	21. 0. 17.12	+ 2,445
Σ 2030. p. ....	88. 30	1	16. 43. 21.54	+ 3,037	* (Mag. 7, 8.) ....	56. 30	2	21. 0. 44.13	+ 2,445
α Ophiuchi. ....	86. 43	2	16. 45. 17.58	+ 2,998	Σ 2769. f. ....	68. 11	3	21. 3. 22.43	+ 2,698
Σ 2213. f. ....	93. 59	1	16. 52. 40.88	+ 3,159	Σ 2789. p. ....	37. 42	3	21. 14. 51.44	+ 1,929
* (Mag. 9, 10.) ....	75. 25	3	17. 7. 24.07	+ 2,732	β Aquarii. ....	96. 16	29	21. 23. 11.14	+ 3,163
95 Herculis. {p. ....	114. 6	1	17. 8. 19.24	+ 3,653	Σ 2813. {p. ....	33. 14	1	21. 31. 8.45	+ 1,836
{f. ....	60. 55	3	17. 11. 21.51	+ 2,343	{f. ....	33. 14	1	21. 31. 9.52	+ 1,836
Piazzi XVII. 94. p.	74. 15	4	17. 17. 23.91	+ 2,700	Σ 2815. p. ....	33. 9	1	21. 32. 47.08	+ 1,844
Σ 2178. p. ....	54. 56	3	17. 23. 47.00	+ 2,144	Piazzi XXI. 248. *	33. 14	5	21. 34. 1.66	+ 1,857
α Ophiuchi. ....	77. 19	6	17. 27. 33.44	+ 2,773	Piazzi XXI. 256. p.	33. 8	3	21. 35. 25.43	+ 1,862
Σ 2213. f. ....	58. 48	3	17. 38. 50.58	+ 2,264	μ Cygni. p. ....	61. 58	3	21. 37. 2.12	+ 2,655
* (Mag. 9, 10.) ....	48. 10	1	17. 46. 11.15	+ 1,876	Σ 2834. f. ....	71. 26	2	21. 44. 11.86	+ 2,820
Piazzi XVII. 362. f.	68. 24	1	17. 54. 45.43	+ 2,541	Σ 2840. p. ....	34. 57	1	21. 46. 38.46	+ 2,019
ε Ursæ Minoris. ....	68. 24	3	17. 54. 45.91	+ 2,541	Σ 2848. p. ....	84. 49	3	21. 50. 5.51	+ 3,005
* (Mag. 7, 8.) ....	78. 0	3	17. 58. 20.05	+ 2,786	α Aquarii. ....	91. 5	24	21. 57. 36.99	+ 3,083
* (Mag. 8, 9.) ....	3. 24	21	18. 23. 36.06	-19,235	Σ 2861. f. ....	69. 58	3	21. 58. 31.65	+ 2,824
ε Lyrae. p. ....	90. 26	2	18. 29. 25.99	+ 3,080	Piazzi XXII. 11. sf.	31. 29	3	22. 3. 15.50	+ 2,006
Σ 2523. p. ....	38. 23	1	18. 30. 9.85	+ 1,397	Σ 2878. p. ....	82. 49	2	22. 6. 33.57	+ 2,990
* (Mag. 8.) ....	50. 30	1	18. 39. 4.14	+ 1,984	Σ 2881. ....	61. 13	1	22. 7. 19.98	+ 2,724
Piazzi XIX. 149. {p. ....	50. 33	1	18. 39. 6.52	+ 1,986	Σ 2882. p. ....	53. 2	3	22. 7. 21.32	+ 2,595
{f. ....	69. 9	3	19. 19. 56.00	+ 2,592	Σ 2889. f. ....	64. 31	3	22. 8. 57.94	+ 2,774
Σ 2556. ....	62. 56	3	19. 20. 5.95	+ 2,429	33 Pegasi. f. or p.	69. 57	3	22. 16. 0.94	+ 2,857
γ Aquila. ....	53. 47	2	19. 21. 57.72	+ 2,153	Σ 2902. p. ....	45. 27	3	22. 16. 54.31	+ 2,498
Σ 2576. p. ....	53. 47	1	19. 21. 58.39	+ 2,153	Σ 2905. {p. ....	75. 39	2	22. 19. 25.71	+ 2,925
δ Cygni. p. ....	68. 6	3	19. 32. 36.47	+ 2,576	{f. ....	75. 39	1	22. 19. 26.05	+ 2,925
π Aquilæ. ....	79. 46	1	19. 38. 42.15	+ 2,851	37 Pegasi. p. ....	86. 22	3	22. 21. 55.73	+ 3,035
α Aquilæ. ....	56. 46	3	19. 39. 31.00	+ 2,276	Σ 2916. sf. ....	49. 36	5	22. 24. 23.72	+ 2,609
β Aquilæ. ....	45. 15	3	19. 40. 0.19	+ 1,869	A.S.C. 2697. ....	90. 13	5	22. 26. 27.87	+ 3,072
* (Mag. 7, 8.) ....	78. 34	3	19. 41. 12.48	+ 2,826	η Aquarii. ....	90. 56	3	22. 27. 11.13	+ 3,062
ψ Cygni. f. ....	81. 33	12	19. 43. 1.56	+ 2,926	Piazzi XXII. {p. ....	95. 3	1	22. 39. 37.88	+ 3,111
Σ 2606. ....	83. 59	10	19. 47. 30.20	+ 2,945	219. .... {f. ....	95. 3	2	22. 39. 38.32	+ 3,111
Σ 2609. p. ....	67. 59	4	19. 47. 52.58	+ 2,587	Σ 2958. p. ....	79. 0	3	22. 48. 54.67	+ 2,991
Σ 2610. p. ....	37. 59	3	19. 51. 30.92	+ 1,557	α Pegasi. ....	75. 39	22	22. 56. 50.73	+ 2,977
Σ 2613. p. ....	57. 9	3	19. 52. 24.42	+ 2,309	Piazzi XXII. 306. p.	58. 2	3	22. 59. 52.28	+ 2,854
Σ 2611. p. ....	52. 19	3	19. 52. 50.36	+ 2,160	Σ 3013. f. ....	74. 15	3	23. 19. 37.24	+ 3,004
	54. 54	1	19. 53. 10.38	+ 2,243	Σ 3062. p. ....	32. 27	3	23. 57. 58.88	+ 3,052
	79. 41	1	19. 53. 51.65	+ 2,856	Piazzi XXIII. 276.	61. 51	1	23. 58. 22.44	+ 3,065
	43. 4	2	19. 54. 3.30	+ 1,813	* (Mag. 8, 9.) ....	53. 37	2	23. 59. 51.17	+ 3,070

\* The brightest of the three.



ZENITH DISTANCES  
OBSERVED WITH THE MURAL CIRCLE,  
AND  
CALCULATION  
OF  
GEOCENTRIC NORTH POLAR DISTANCES.

1841.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			"	"	"	"	"	"						
Feb. 19	(a) $\alpha$ Cygni R. M. ....	350.15	2.25,5	28,4	24,0	25,8	20,8	24,3	5,891	+1.28,30	+1	-0,15	350.18.52,65	G.
	$\alpha$ Cygni. ....	185.15	3.52,8	52,2	52,4	51,3	51,8	50,1			+2	+0,59	185.18.51,87	G.
	$\alpha$ Cephei R. M. ....	7.30	0.46,8	49,8	46,5	47,1	44,0	45,6	10,710	-12,29			7.30.34,24	G.
	$\alpha$ Cephei. ....	168.5	2.12,6	12,0	10,9	9,0	11,2	8,8					168.7.10,47	G.
Mar. 4	$\epsilon$ Pleiadum M. ....	206.0	2.16,8	17,3	14,4	11,8	16,0	13,2	7,246	+59,95			206.3.14,58	G.
	$\delta$ Pleiadum. ....	206.30	4.11,2	9,9	8,9	5,7	11,4	6,6					206.34.8,42	G.
	14 Aurigæ. ....	197.30	1.24,6	23,9	21,9	19,4	20,0	21,0					197.31.21,63	G.
Mar. 5	$\alpha$ Cygni R. M. ....	350.15	3.17,0	19,8	16,9	16,8	16,2	17,4	8,649	+30,69			350.18.47,62	G.
	$\alpha$ Cygni. ....	185.15	3.55,9	56,4	55,2	53,4	53,2	54,2					185.18.54,22	G.
Mar. 6	$\epsilon$ Pleiadum. ....	206.0	3.15,2	16,8	12,9	11,7	12,0	11,1			+2	+0,27	206.3.13,15	G.
	$\delta$ Pleiadum. ....	206.30	4.10,7	12,4	9,7	7,1	12,0	7,1			+2	+0,26	206.34.9,56	G.
	14 Aurigæ. ....	197.30	1.23,5	25,9	21,8	19,8	21,2	20,5					197.31.21,95	G.
	$\beta$ Tauri R. M. ....	334.5	0.36,2	38,0	31,4	33,8	36,8	35,3	12,997	-59,98			334.4.35,19	G.
	$\beta$ Tauri. ....	201.30	3.9,0	10,5	7,4	4,1	7,0	5,0					201.33.6,77	G.
	(b) $\theta^1$ Orionis. ....	235.30	0.3,8	6,8	0,8	1,0	1,8	2,0					235.30.2,70	G.
	C Tauri. ....	202.25	2.4,0	5,4	2,9	0,2	3,1	0,0					202.27.2,35	G.
	$\kappa$ Aurigæ. ....	200.25	3.13,0	13,4	11,2	7,6	11,5	9,1					200.28.10,57	G.
Mar. 9	$\epsilon$ Pleiadum. ....	206.0	3.16,8	15,5	14,2	9,4	14,3	11,7					206.3.13,25	G.
Mar. 10	C Tauri. ....	202.25	2.4,2	5,9	1,0	1,0	1,2	0,3			+1	+0,23	202.27.2,02	G.
	* $\mathcal{R}$ . 6 <sup>h</sup> .24 <sup>m</sup> .7 <sup>s</sup> . ....	173.0	2.58,9	59,8	56,7	55,5	58,1	55,2					173.2.57,23	G.
	(c) $\Sigma$ 941. ....	188.15	3.49,6	50,1	47,6	45,6	49,0	46,8					188.18.47,63	G.
	(d) * $\mathcal{R}$ . 6 <sup>h</sup> .30 <sup>m</sup> .46 <sup>s</sup> . ....	176.0	0.23,8	24,6	21,3	21,0	20,1	20,2					176.0.21,78	G.
	(e) Piazzzi VI. 301. np. ....	177.0	2.16,6	16,7	14,0	12,8	15,5	13,0					177.2.14,48	G.
	47 Geminorum. ....	202.50	4.32,1	32,1	28,1	26,3	28,7	28,1					202.54.28,67	G.
	$\epsilon$ Geminorum M. ....	203.45	4.25,4	26,1	21,6	22,8	21,0	24,4	3,214	+2.24,04			203.51.47,04	G.
	$\kappa$ Geminorum. ....	205.10	4.47,8	47,9	44,9	42,7	47,4	44,4					205.14.45,25	G.
	$\alpha$ Cephei R. M. ....	7.25	4.42,8	42,9	40,8	40,4	39,7	40,8	7,855	+47,26			7.30.27,89	G.
	$\alpha$ Cephei. ....	168.5	2.18,9	17,8	16,4	13,9	16,0	14,3					168.7.15,93	G.
Mar. 11	Polaris R. M. ....	34.0	4.36,8	40,6	33,6	35,2	36,4	35,1	13,843	-1.17,62			34.3.18,08	G.
	Polaris. ....	141.30	4.32,3	30,0	27,5	27,1	28,8	28,4					141.34.28,45	G.
	* $\mathcal{R}$ . 6 <sup>h</sup> .24 <sup>m</sup> .7 <sup>s</sup> . ....	173.0	2.59,7	60,2	58,8	56,4	56,5	56,8					173.2.57,68	G.
	$\Sigma$ 941. ....	188.15	3.48,8	49,6	48,0	44,7	50,4	46,4					188.18.47,50	G.
	(f) * 6 <sup>h</sup> .30 <sup>m</sup> .46 <sup>s</sup> . ....	176.0	0.24,2	26,0	22,9	20,8	21,0	21,4					176.0.22,67	G.
	Piazzzi VI. 301. ....	177.0	2.16,9	15,5	14,9	12,2	16,3	14,3					177.2.14,73	G.
	47 Geminorum. ....	202.50	4.32,9	30,9	27,8	26,0	30,6	28,4					202.54.28,87	G.
	Castor R. M. ....	337.45	4.33,0	33,9	29,8	30,0	30,8	32,4	7,919	+45,92			337.50.17,00	G.
	Castor. ....	197.45	2.29,4	27,4	24,2	23,8	24,0	25,3					197.47.25,38	G.
	Procyon R. M. ....	311.15	1.21,3	20,9	14,7	16,6	14,0	17,7	14,817	-1.37,94			311.14.39,43	G.
	Procyon. ....	224.20	3.8,9	6,8	2,8	2,4	6,8	4,4			-2	+0,29	224.23.4,97	G.
	$\epsilon$ Geminorum. ....	203.50	1.48,4	46,0	44,0	43,5	45,1	43,5					203.51.45,16	G.
	$\kappa$ Geminorum. ....	205.10	4.47,9	46,9	44,6	42,0	47,3	45,6					205.14.45,12	G.
	$\omega^1$ Cancri. ....	204.10	1.54,0	52,0	50,0	50,0	48,7	49,9					204.11.50,53	G.
	6 Cancri. ....	201.45	2.14,2	11,7	9,6	6,2	10,9	8,8					201.47.9,95	G.
	$\beta$ Cancri R. M. ....	315.15	1.32,2	32,5	27,8	28,0	28,2	30,0	8,402	+35,85			315.17.5,45	G.
	$\beta$ Cancri. ....	220.20	0.41,3	41,4	35,9	37,3	40,5	39,0					220.20.39,15	G.
	$\lambda$ Cancri. ....	205.30	0.10,1	9,4	6,9	5,8	4,6	5,9					205.30.7,10	G.
	$\alpha$ Cephei R. M. ....	7.30	0.16,7	16,2	14,0	14,8	13,0	13,2	9,444	+14,12			7.30.28,74	G.
	$\alpha$ Cephei. ....	168.5	2.18,7	18,4	16,8	14,5	15,5	13,8					168.7.16,00	G.
Mar. 12	Polaris R. M. ....	34.0	3.27,0	29,0	23,8	22,5	24,0	23,6	10,445	-6,76			34.3.17,79	G.
	Polaris. ....	141.30	4.28,0	30,5	25,6	24,2	27,9	24,0					141.34.26,13	G.
	$\kappa$ Aurigæ. ....	200.25	3.12,7	15,2	11,1	7,4	13,7	7,9					200.28.10,93	G.
	m Ursæ Maj. R. M. ....	3.30	1.33,0	33,8	28,5	29,2	30,8	30,0	15,090	-1.43,63			3.29.47,07	G.
	m Ursæ Majoris. ....	172.5	2.61,2	61,5	59,0	56,1	58,8	56,9					172.7.58,53	G.

Coincidence at the middle wire and Runs taken March 10, 2<sup>h</sup>. (Temp. 53° 6.)

(a) Before this observation the Circle was taken from the wall and cleaned, and the Microscopes were adjusted. The Telescope was moved on the limb about 65°. (b) The first star of the Trapezium. (c) Seen double; judged to be brighter than stars of the 8th magnitude. (d) The star faint, and bisection doubtful. (e) The two stars are equal; the preceding was taken. (f) Extremely faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
52,26	7.29.59,63	29,764	45,2	46,1	7,70				45.17.15,61	-10,43	$\alpha$ Cygni R.
	7.29.50,59								45.17.15,57		$\alpha$ Cygni.
52,56	-9.41.41,96		47,0	48,0	9,95				28.5.16,37	-5,45	$\alpha$ Cephei R.
	-9.41.41,81								28.5.16,52		$\alpha$ Cephei.
	28.14.22,30	29,766	41,8	42,0	31,68				66.2.2,26	+10,79	$\epsilon$ Pleiadum.
	28.45.16,14				32,36				66.32.56,78	+10,64	$d$ Pleiadum.
	19.42.29,35	29,762	40,2	39,0	21,26				57.29.58,89	+12,50	14 Aurigæ.
50,92	7.30.4,66	29,690	42,1	42,4	7,74				45.17.20,68	-13,56	$\alpha$ Cygni R.
	7.30.1,94								45.17.17,96		$\alpha$ Cygni.
	28.14.20,87	29,830	46,8	48,0	31,86				66.2.0,51	+10,68	$\epsilon$ Pleiadum.
	28.45.17,28				32,04				66.32.57,60	+10,53	$d$ Pleiadum.
	19.42.29,67	29,860	45,2	44,9	21,07				57.29.59,02	+12,46	14 Aurigæ.
50,98	23.44.17,09				25,87				61.31.51,24	+10,66	$\beta$ Tauri R.
	23.44.14,49				1.32,74				61.31.48,64	+10,66	$\beta$ Tauri.
	57.41.10,42				26,98				95.29.51,44	-1,27	$\theta^1$ Orionis.
	24.38.10,07				24,55				62.25.45,33	+9,39	$\gamma$ Tauri.
	22.39.18,29								60.26.51,12	+9,09	$\alpha$ Aurigæ.
	28.14.20,97	30,346	56,2	56,6	31,34				66.2.0,59	+10,50	$\epsilon$ Pleiadum.
	24.38.9,74	30,400	51,3	52,0	27,07				62.25.45,09	+9,38	$\gamma$ Tauri.
	-4.45.55,05			50,6	4,93				33.1.8,30	+16,99	* $\mathcal{R}$ . 6 <sup>h</sup> . 24 <sup>m</sup> . 7 <sup>s</sup> .
	10.29.55,35				10,97				48.17.14,60	+12,08	$\Sigma$ 941.
	-1.48.30,50				1,87				35.58.35,91	+15,71	* $\mathcal{R}$ . 6 <sup>h</sup> . 30 <sup>m</sup> . 46 <sup>s</sup> .
	-0.46.37,80				0,80				37.0.29,68	+13,91	Piazzi VI. 301. <i>np</i> .
	25.5.36,39				27,71				62.53.12,38	+5,31	47 Geminorum.
	26.2.54,76		48,8		29,04				63.50.32,08	+2,91	$\epsilon$ Geminorum.
	27.25.52,97				30,83				65.13.32,08	+2,45	$\alpha$ Geminorum.
51,91	-9.41.35,61	30,450	47,4		10,16				28.5.22,51	-10,65	$\alpha$ Cephei R.
	-9.41.36,35								28.5.21,77		$\alpha$ Cephei.
53,26	-36.14.25,80	30,416	53,2	57,0	42,83				1.31.59,65	+18,14	Polaris R.
	-36.14.23,83								1.32.1,62		Polaris.
	-4.45.54,60	30,376	51,0	49,5	4,94				33.1.8,71	+17,03	* $\mathcal{R}$ . 6 <sup>h</sup> . 24 <sup>m</sup> . 7 <sup>s</sup> .
	-10.29.55,22				10,99				48.17.14,19	+12,12	$\Sigma$ 941.
	-1.48.29,61				1,87				35.58.36,80	+15,75	* $\mathcal{R}$ . 6 <sup>h</sup> . 30 <sup>m</sup> . 46 <sup>s</sup> .
	-0.46.37,55				0,80				37.0.29,93	+14,02	Piazzi VI. 301.
	25.5.36,59				27,76				62.53.12,63	+5,35	47 Geminorum.
51,19	19.58.35,28		48,1		21,61				57.46.5,17	+5,47	Castor R.
	19.58.33,10								57.46.2,99		Castor.
52,20	16.34.12,85				1.2,72				84.22.23,85	-3,26	Procyon R.
	16.34.12,60								84.22.23,69		Procyon.
	26.2.52,88				29,05				63.50.30,21	+2,96	$\epsilon$ Geminorum.
	27.25.52,84				30,85				65.13.31,97	+2,50	$\alpha$ Geminorum.
	26.22.58,25		47,5		29,52				64.10.36,05	+1,69	$\omega^1$ Cancri.
	23.58.17,67				26,46				61.45.52,41	+2,25	6 Cancri.
52,30	42.31.46,83				54,55				80.19.49,66	-3,93	$\beta$ Cancri R.
	42.31.46,87								80.19.49,70		$\beta$ Cancri.
	27.41.14,82				31,23				65.28.54,35	-0,07	$\lambda$ Cancri.
52,37	-9.41.36,46	30,300	48,0	49,0	10,11				28.5.21,71	-10,90	$\alpha$ Cephei R.
	9.41.36,28								28.5.21,89		$\alpha$ Cephei.
51,96	-36.14.25,51	30,280	54,8	58,8	42,48				1.32.0,29	+17,84	Polaris R.
	-36.14.26,15								1.31.59,65		Polaris.
	22.39.18,65	30,262	52,0	54,8	24,39				60.26.51,32	+9,16	$\alpha$ Aurigæ.
52,80	-5.40.54,79	30,278	51,2	50,2	5,87				32.6.7,62	-4,98	$m$ Ursa Maj. R.
	5.40.53,75								32.6.8,66		$m$ Ursa Majoris.

Coincidence of Micrometer Wire with fixed Wire = 10', 111, 10', 118, 10', 121, 10', 125, 10', 131 at the five wires.

One Micrometer Revolution = 20", 854

Correction for Run = - 5", 8.

Adopted Zenith Point = 177°. 46'. 52". 28.

Assumed Co-latitude = 37° 47'. 8". 28

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.	Correction to Middle Wire.  " "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Mar. 13	Polaris R. M. ....	34. 0	3. 19,4	20,4	14,1	15,1	14,0	16,7	10,070	+ 1,06			34. 3. 17,26	G.
	Polaris.....	141. 30	4. 32,0	30,0	29,0	25,8	29,2	27,7					141. 34. 28,38	G.
Mar. 15	Piazzi VI. 301. ....	177. 0	2. 14,8	17,1	14,0	11,1	16,0	12,9					177. 2. 14,03	G.
Mar. 17	45 Leonis.....	219. 25	1. 52,3	54,2	50,0	49,0	50,0	48,9					219. 26. 50,62	G.
	49 Leonis.....	220. 30	2. 54,7	53,5	50,8	50,9	49,3	50,8					220. 32. 51,50	G.
	l Leonis.....	218. 35	2. 64,4	64,5	61,0	60,0	59,2	61,0					218. 38. 1,50	G.
(a)	* R. 10 <sup>h</sup> . 53 <sup>m</sup> . 58 <sup>s</sup> .	220. 15	2. 44,3	45,0	39,2	39,7	38,0	39,8					220. 17. 40,83	G.
	χ Leonis.....	221. 45	4. 25,7	25,8	21,0	20,8	19,6	22,2					221. 49. 22,25	G.
	A.S.C. 1322.....	221. 5	0. 19,3	21,0	15,8	17,3	13,2	15,5					221. 5. 17,00	G.
	γ Leonis.....	227. 5	2. 52,3	53,4	49,9	49,4	47,4	49,1					227. 7. 50,08	G.
	σ Leonis.....	223. 5	1. 65,0	64,8	61,0	59,5	58,7	61,5					223. 7. 1,63	G.
	λ Draconis R. M....	15. 45	4. 22,9	24,9	21,1	20,1	17,1	19,9	13,868	- 1. 18,20			15. 48. 2,53	G.
	λ Draconis.....	159. 45	4. 47,5	47,1	45,5	42,3	42,4	44,4					159. 49. 44,58	G.
	* R. 11 <sup>h</sup> . 27 <sup>m</sup> . 45 <sup>s</sup> .	222. 20	2. 17,1	18,4	12,8	13,9	11,8	13,8					222. 22. 14,50	G.
	* R. 11 <sup>h</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> ..	222. 50	2. 8,8	9,2	3,9	4,2	2,5	5,0					222. 52. 5,47	G.
Mar. 18	* R. 8 <sup>h</sup> . 48 <sup>m</sup> . 16 <sup>s</sup> ..	208. 0	3. 48,4	48,0	45,8	43,0	46,0	44,4					208. 3. 45,70	G.
	* R. 8 <sup>h</sup> . 58 <sup>m</sup> . 37 <sup>s</sup> ..	208. 20	2. 33,8	33,1	30,4	28,2	32,0	29,0					208. 22. 30,93	G.
	* R. 9 <sup>h</sup> . 3 <sup>m</sup> . 39 <sup>s</sup> ..	208. 40	1. 45,0	45,0	43,0	41,0	42,4	40,8					208. 41. 42,77	G.
Mar. 19	c Geminorum.....	203. 50	1. 49,7	49,8	47,0	46,8	46,5	45,5			+ 3	+ 0,67	203. 51. 48,12	G.
	ω <sup>1</sup> Cancri.....	204. 10	1. 55,1	55,1	52,4	52,4	51,9	50,8					204. 11. 52,83	G.
	6 Cancri.....	201. 45	2. 14,3	14,8	10,8	8,5	10,2	8,8					201. 47. 11,10	G.
	ζ Cancri.....	211. 50	3. 49,8	49,7	46,8	43,4	47,2	45,2					211. 53. 46,78	G.
	λ Cancri.....	205. 30	0. 11,0	11,8	8,4	8,0	6,9	6,6					205. 30. 8,77	G.
	ν <sup>1</sup> Cancri.....	204. 55	3. 10,2	10,8	7,7	6,4	6,4	6,8					204. 58. 7,87	G.
	η Cephei SP. R. M.	64. 20	3. 24,8	27,4	21,0	22,9	22,0	24,1	17,900	- 2. 42,23			64. 20. 41,27	G.
	η Cephei SP.....	111. 15	2. 6,2	7,1	2,9	4,0	1,8	2,0					111. 17. 3,87	G.
	* R. 8 <sup>h</sup> . 48 <sup>m</sup> . 16 <sup>s</sup> ..	208. 0	3. 48,7	50,3	46,8	44,0	48,0	45,0					208. 3. 46,90	G.
	* R. 8 <sup>h</sup> . 58 <sup>m</sup> . 37 <sup>s</sup> ..	208. 20	2. 34,8	34,3	31,0	29,4	32,2	29,8					208. 22. 31,77	G.
	* R. 9 <sup>h</sup> . 3 <sup>m</sup> . 39 <sup>s</sup> ..	208. 40	1. 45,8	45,0	42,7	41,0	42,8	39,8					208. 41. 42,75	G.
	A.S.C. 1132.....	204. 10	0. 59,7	59,7	57,2	57,0	54,8	55,2					204. 10. 57,22	G.
(b)	* R. 9 <sup>h</sup> . 14 <sup>m</sup> . 48 <sup>s</sup> ..	208. 55	3. 54,4	54,8	51,8	49,0	52,4	49,8					208. 58. 51,80	G.
	ω Leonis.....	220. 15	1. 18,0	21,0	14,7	15,4	16,3	15,0					220. 16. 16,65	G.
	* R. 9 <sup>h</sup> . 21 <sup>m</sup> . 4 <sup>s</sup> ..	209. 50	1. 60,0	60,5	57,6	56,8	59,5	55,2					209. 51. 58,15	G.
(c)	α Cephei R. M....	7. 30	0. 34,1	36,0	32,1	32,3	30,2	32,2	10,321	- 4,23			7. 30. 28,55	G.
	α Cephei.....	168. 5	2. 21,0	20,0	18,2	15,8	15,6	16,1					168. 7. 17,65	G.
Mar. 24	ω <sup>1</sup> Cancri.....	204. 10	1. 53,7	53,5	50,5	50,8	50,4	50,4					204. 11. 51,43	G.
	ζ Cancri.....	211. 50	3. 47,9	47,8	45,0	43,0	46,8	44,4					211. 53. 45,58	G.
	λ Cancri.....	205. 30	0. 9,7	9,0	6,8	6,2	4,9	5,5					205. 30. 7,02	G.
	ν <sup>1</sup> Cancri.....	204. 55	3. 9,2	8,2	5,9	5,0	4,9	4,9					204. 58. 6,17	G.
	η Cephei SP. R. M.	64. 20	2. 24,0	26,5	19,5	22,9	20,8	23,2	15,010	- 1. 42,02			64. 20. 40,65	G.
	η Cephei SP.....	111. 15	2. 7,3	8,4	3,8	4,9	2,8	3,0					111. 17. 4,90	G.
	κ Ursæ Maj. R. M.	353. 20	2. 16,7	19,0	14,3	15,9	13,9	14,5	8,059	+ 42,94			353. 22. 58,52	G.
	κ Ursæ Majoris...	182. 10	4. 47,9	46,9	46,4	43,7	45,8	46,0					182. 14. 45,83	G.
	A.S.C. 1132.....	204. 10	0. 58,0	58,8	55,8	56,0	54,8	54,5					204. 10. 56,27	G.
	* R. 9 <sup>h</sup> . 14 <sup>m</sup> . 48 <sup>s</sup> ..	208. 55	3. 53,0	52,3	49,3	47,7	52,4	48,8					208. 58. 50,35	G.
	ω Leonis.....	220. 15	1. 16,8	18,0	12,8	13,8	14,7	13,2					220. 16. 14,82	G.
	* R. 9 <sup>h</sup> . 21 <sup>m</sup> . 4 <sup>s</sup> ..	209. 50	1. 58,0	58,8	55,8	55,0	56,2	53,3					209. 51. 56,07	G.
	ν Ursæ Maj. R. M.	5. 20	2. 19,0	21,0	16,1	17,2	17,0	16,9	8,440	+ 34,99			5. 22. 52,72	G.
	ν Ursæ Majoris...	170. 10	4. 53,9	54,1	53,8	50,8	51,0	52,1					170. 14. 52,32	G.
	ν Leonis.....	216. 45	4. 5,3	3,9	2,6	0,6	1,0	0,3					216. 49. 2,03	G.
	η Leonis.....	212. 25	4. 5,4	3,5	3,0	0,9	2,0	1,5					212. 29. 2,47	G.
	λ Ursæ Maj. R. M.	349. 15	4. 16,0	18,8	15,0	14,7	14,9	14,9	12,489	- 49,45			349. 18. 26,02	G.
	λ Ursæ Majoris...	186. 15	4. 21,0	19,8	17,4	16,2	17,1	17,0					186. 19. 17,82	G.
	45 Leonis.....	219. 25	1. 49,8	51,3	46,3	47,1	47,3	47,0					219. 26. 48,03	G.
	49 Leonis.....	220. 30	2. 51,4	51,1	47,6	47,8	48,0	48,3					220. 32. 48,87	G.
	l Leonis.....	218. 35	2. 61,8	62,0	57,9	58,4	58,5	59,7					218. 37. 59,53	G.

Coincidence at the middle wire and Runs taken March 23, 1<sup>h</sup>. (Temp. 54°.)

(a) Very faint.

(b) No star answering in *R.* to the star (i) in Nautical Almanac of 1837, p. 476.

(c) **Unsatisfactory.**

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite lamb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
52,52	-36.14.24,98	30,342	52,0	53,8	43,00				1.32.0,30	+17,54	Polaris R. Polaris.
	-36.14.23,90								1.32.1,38		
53,56	-0.46.38,23	30,002	54,8	54,6	0,79				37.0.29,24	+14,30	Piazzi VI. 301.
	41.37.58,34	29,516	47,3	45,3	51,60				79.25.58,22	-11,58	45 Leonis.
	42.43.59,22				53,63				80.32.1,13	-12,16	49 Leonis.
	40.49.0,22				50,15				78.37.7,65	-12,72	1 Leonis.
	42.28.48,55			45,0	53,19				80.16.50,02	-13,71	* R. 10 <sup>b</sup> . 53 <sup>m</sup> . 58 <sup>s</sup> .
	44.0.29,97				56,11				81.48.34,36	-13,98	χ Leonis.
	43.16.24,72				54,69				81.4.27,69	-14,41	A.S.C. 1322.
	49.18.57,80				1.7,53				87.7.13,61	-14,96	q Leonis.
	45.18.9,35				58,70				83.6.16,35	-14,88	σ Leonis.
	-17.59.10,25				18,88				19.47.39,15	-8,22	λ Draconis R.
	-17.59.7,70								19.47.41,70		λ Draconis.
	44.53.22,22	29,510	46,5	44,3	57,26				82.21.27,76	-15,58	* R. 11 <sup>b</sup> . 27 <sup>m</sup> . 45 <sup>s</sup> .
	45.3.13,19				58,26				82.51.19,73	-15,66	* R. 11 <sup>b</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> .
	30.14.53,42	29,522	48,4	46,7	33,78				68.2.35,48	-3,12	* R. 8 <sup>b</sup> . 48 <sup>m</sup> . 16 <sup>s</sup> .
	30.33.38,65				34,21				68.21.21,14	-3,93	* R. 8 <sup>b</sup> . 58 <sup>m</sup> . 37 <sup>s</sup> .
	30.52.50,49				34,65				68.40.33,42	-4,37	* R. 9 <sup>b</sup> . 3 <sup>m</sup> . 39 <sup>s</sup> .
	26.2.55,84	29,602	48,6	47,4	28,36				63.50.32,48	+3,30	c Geminorum.
	26.23.0,55				28,78				64.10.37,61	+2,08	ω <sup>1</sup> Cancri.
	23.58.18,82				25,79				61.45.52,89	+2,70	6 Cancri.
	34.4.54,50			47,0	39,27				71.52.42,05	-1,09	ζ Cancri.
	27.41.16,49				30,47				65.28.55,24	+0,34	λ Cancri.
	27.9.15,59				29,78				64.56.53,65	+0,10	ν <sup>1</sup> Cancri.
	-66.31.48,99	29,618	47,3	46,5	2.13,13				-28.46.53,84	-15,53	η Cephei SP. R.
	-66.31.48,41								-28.46.53,26		η Cephei SP.
	30.14.54,62				33,91				68.2.36,81	-3,06	* R. 8 <sup>b</sup> . 48 <sup>m</sup> . 16 <sup>s</sup> .
	30.33.39,49				34,33				68.21.22,10	-3,87	* R. 8 <sup>b</sup> . 58 <sup>m</sup> . 37 <sup>s</sup> .
	30.52.50,47				34,77				68.40.33,52	-4,32	* R. 9 <sup>b</sup> . 3 <sup>m</sup> . 39 <sup>s</sup> .
	26.22.1,94				28,83				64.9.42,05	-3,44	A.S.C. 1132.
	31.9.59,52				35,17				68.57.42,97	-5,19	* R. 9 <sup>b</sup> . 14 <sup>m</sup> . 48 <sup>s</sup> .
	42.27.24,37	29,626	47,0	45,8	53,26				80.15.25,91	-8,18	ω Leonis.
	32.3.5,87				36,47				69.50.50,62	-5,85	* R. 9 <sup>b</sup> . 21 <sup>m</sup> . 4 <sup>s</sup> .
53,10	-9.41.36,27	29,584	47,2	48,0	9,89				28.5.22,12	-12,62	α Cephei R.
	-9.41.34,63								28.5.23,76		α Cephei.
52,78	26.22.59,15	30,150	49,3	47,4	29,31				64.10.36,74	+2,30	ω <sup>1</sup> Cancri.
	34.4.53,30				39,06				71.52.41,54	-0,93	ζ Cancri.
	27.41.14,74				31,00				65.28.54,02	+0,59	λ Cancri.
	27.9.13,89				30,30				64.56.52,47	+0,37	ν <sup>1</sup> Cancri.
	-66.31.48,37			46,7	2.15,46				-28.46.53,55	-16,30	η Cephei SP. R.
	-66.31.47,38								-28.46.54,56		η Cephei SP.
	4.23.53,76				4,59				42.13.6,63	+4,43	α Ursa Maj. R.
	4.23.53,55								42.13.6,42		α Ursa Majoris.
	26.22.3,99			46,5	29,34				64.9.41,61	-3,02	A.S.C. 1132.
	31.9.58,07				35,80				68.57.42,15	-4,89	* R. 9 <sup>b</sup> . 14 <sup>m</sup> . 48 <sup>s</sup> .
	42.27.22,54				54,12				80.15.24,94	-8,11	ω Leonis.
	32.3.3,79				37,05				69.50.49,12	-5,56	* R. 9 <sup>b</sup> . 21 <sup>m</sup> . 4 <sup>s</sup> .
	-7.34.0,44				7,87				30.12.59,97	+2,94	ν Ursa Maj. R.
	-7.33.59,96								30.13.0,45		ν Ursa Majoris.
	39.0.9,75			45,4	48,02				76.48.6,05	9,09	σ Leonis.
	14.40.10,19				41,02				72.27.59,49	-8,73	η Leonis.
	8.30.26,26				8,88				46.17.43,42	-3,48	α Ursa Maj. R.
	8.30.25,54								46.17.42,70		α Ursa Majoris.
	41.37.55,75			44,7	52,77				79.25.56,80	-11,45	45 Leonis.
	42.43.59,22				54,85				80.31.59,72	-12,06	49 Leonis.
	40.49.7,25	30,146	46,2	45,4	51,42				78.37.6,95	-12,55	1 Leonis.

Coincidence of Micrometer Wire with fixed Wire = 10<sup>h</sup>.121 at the middle Wire. From March 17 = 10<sup>h</sup>.118.

One Micrometer Revolution = 20<sup>h</sup>.854.

Correction for Runo = 5<sup>h</sup>.8. From March 17 = 1<sup>h</sup>.8. (the mean of two results)

Adopted Zenith Point = 177<sup>h</sup>.48<sup>m</sup>.52<sup>s</sup>.28

Assumed Co-latitude = 37<sup>h</sup>.47<sup>m</sup>.8<sup>s</sup>.28.

Month and Day.	NAME OF STAR or PLANET.	Poitot.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			" "	" "	" "	" "	" "	" "						
Mar. 24	* $\alpha$ Leonis. 10 <sup>h</sup> . 53 <sup>m</sup> . 58 <sup>s</sup> .	220.15	2.41,1	41,8	37,0	38,8	38,5	38,3	8,182	+ 40,38			220.17.39,08	G.
	$\chi$ Leonis. ....	221.45	4.23,1	22,8	19,0	19,4	21,8	21,4					221.49.20,98	G.
	(a) $\delta$ Leonis R. M. ....	326.55	4.21,9	24,5	19,0	19,7	21,8	21,8					327.0.1,56	G.
	$\delta$ Leonis. ....	208.35	2.45,0	43,6	41,7	39,9	41,4	40,2					208.37.41,80	G.
	$\sigma$ Leonis. ....	223.5	1.61,3	60,0	58,2	58,1	59,2	59,5					223.6.59,27	G.
	* $\alpha$ Leonis. 11 <sup>h</sup> . 27 <sup>m</sup> . 45 <sup>s</sup> .	222.20	2.14,7	15,0	11,1	12,1	11,3	12,8					222.22.12,70	G.
	* $\alpha$ Leonis. 11 <sup>h</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> .	222.50	2.5,8	5,6	1,1	2,0	2,0	3,6					222.52.3,23	G.
Mar. 25	14 Aurigæ. ....	197.30	1.25,7	26,6	21,0	23,0	22,4	21,3	8,015	+ 43,86			197.31.23,25	G.
	47 Geminorum. ....	202.50	4.32,0	32,0	28,1	27,6	29,3	28,8					202.54.29,37	G.
	Castor R. M. ....	337.45	4.34,0	36,7	32,0	33,0	34,4	34,0					337.50.17,61	G.
	Castor. ....	197.45	2.29,0	29,0	23,8	25,0	25,8	25,2					197.47.26,15	G.
	$\kappa$ Geminorum M. ....	205.10	4.42,3	43,0	39,3	39,6	41,1	41,3					205.14.46,11	G.
	$\zeta$ Cancri. ....	211.50	3.48,9	48,6	45,5	43,7	46,2	45,0					211.53.46,08	G.
Mar. 27	$\nu^1$ Cancri. ....	204.55	3.8,0	11,1	5,8	8,1	6,0	7,8					204.58.7,62	G.
Apr. 10	* $\alpha$ Leonis. 11 <sup>h</sup> . 27 <sup>m</sup> . 45 <sup>s</sup> .	222.20	2.13,8	15,4	11,2	11,5	12,2	12,2	8,007	+ 43,97			222.22.12,48	G.
	* $\alpha$ Leonis. 11 <sup>h</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> .	222.50	2.5,0	6,8	1,8	2,3	3,5	3,0					222.52.3,52	G.
	$\beta$ Leonis R. M. ....	321.0	3.26,9	28,8	23,5	24,7	24,6	25,6					321.4.9,29	G.
	$\beta$ Leonis. ....	214.30	3.37,7	36,3	33,8	31,0	34,8	33,6					214.33.34,15	G.
Apr. 12	A.S.C. 1132. ....	204.10	0.57,8	56,3	55,7	55,3	54,3	54,8					204.10.55,60	G.
	* $\alpha$ Leonis. 9 <sup>h</sup> . 14 <sup>m</sup> . 48 <sup>s</sup> .	208.55	3.51,3	50,2	49,8	47,2	50,9	47,7					208.58.49,12	G.
	$\omega$ Leonis. ....	220.15	1.15,9	16,8	12,9	13,3	14,4	12,0					220.16.14,08	G.
Apr. 19	$\eta$ Leonis. ....	212.25	4.6,1	6,3	2,2	0,9	5,4	0,8	11,078	- 20,08			212.29.3,18	G.
	49 Leonis. ....	220.30	2.52,4	53,5	47,9	48,4	50,7	47,5					220.32.49,77	G.
	Arcturus R. M. ....	325.35	2.27,9	30,0	23,0	24,7	26,2	26,2					325.37.6,00	G.
	Arcturus. ....	210.0	0.41,4	42,6	37,6	36,3	40,8	37,4					210.0.39,28	G.
	$\lambda$ Virginis. ....	242.35	3.9,7	10,2	5,8	5,0	7,4	6,7					242.38.7,13	G.
	$\epsilon$ Bootis R. M. ....	333.20	2.26,7	28,2	22,8	25,0	24,2	25,0					333.21.1,78	G.
	$\epsilon$ Bootis. ....	202.15	1.46,4	47,3	43,1	41,4	43,7	42,8					202.16.43,93	G.
Apr. 23	$\nu$ Leonis. ....	216.45	4.5,8	3,8	3,4	0,0	2,0	0,3	10,414	- 6,24			216.49.2,12	G.
	$\eta$ Leonis. ....	212.25	4.6,7	5,0	3,2	0,1	3,5	2,2					212.29.3,02	G.
	45 Leonis. ....	219.25	1.50,6	51,3	47,9	47,4	48,2	47,9					219.26.49,12	G.
	$\Sigma$ 1447. ....	205.50	1.16,6	14,3	12,8	11,4	12,8	13,0					205.51.13,35	G.
	35 Sextantis. ....	224.25	1.9,7	9,1	4,9	5,3	6,9	6,0					224.26.6,87	G.
	$\nu$ Hyd. et Crat. R. M. ....	290.15	1.25,0	26,3	20,2	20,9	20,4	21,2					290.16.15,94	G.
	$\nu$ Hyd. et Crat. ....	245.20	1.31,2	32,0	26,0	26,7	26,9	29,2					245.21.28,62	G.
	54 Leonis. ....	204.25	0.58,0	37,0	34,6	33,8	34,0	35,3					204.25.35,38	G.
	$\alpha$ Ursæ Maj. R. M. ....	8.15	0.22,0	26,1	20,1	22,2	20,3	21,2					8.12.22,66	G.
	$\alpha$ Ursæ Majoris. ....	167.25	0.28,3	27,9	25,0	24,4	25,0	24,8					167.25.25,85	G.
	* $\alpha$ Leonis. 10 <sup>h</sup> . 57 <sup>m</sup> . 54 <sup>s</sup> . M	222.5	0.28,8	20,1	24,3	25,3	25,2	26,0					222.1.20,44	G.
	(b) $\Sigma$ 1511. ....	218.10	4.60,0	60,3	56,2	56,0	56,7	56,0					218.14.57,53	G.
	$\phi$ Leonis. ....	232.45	2.39,2	40,8	36,0	35,2	37,2	38,4					232.47.37,52	G.
	$\Sigma$ 1529. ....	230.45	2.32,8	53,0	27,8	28,8	31,0	29,4					230.47.30,20	G.
	83 Leonis. ....	226.5	3.13,7	12,4	9,3	8,8	11,0	9,8					226.8.10,54	G.
	$\Sigma$ 1553. ....	173.0	0.48,9	48,3	46,4	44,9	45,3	45,9					173.0.46,53	G.
	Piazzi XI. 126. ....	231.30	4.7,6	6,7	4,4	2,8	4,4	4,8					231.34.4,68	G.
	(c) $\beta$ Leonis R. ....	321.0	4.13,0	15,0	9,8	9,3	10,0	10,2					321.4.10,77	G.
	$\beta$ Leonis. ....	214.30	3.39,9	38,1	34,9	31,8	36,2	34,7					214.33.35,55	G.
	(d) $\gamma$ Ursæ Maj. R. M. ....	0.10	2.21,2	24,9	19,2	20,8	20,4	19,6					0.10.39,96	G.
	$\gamma$ Ursæ Majoris. ....	175.25	2.10,8	8,8	7,5	6,2	6,3	7,1					175.27.7,55	G.
	* $\alpha$ Leonis. 11 <sup>h</sup> . 59 <sup>m</sup> . 25 <sup>s</sup> .	224.35	2.6,5	5,5	1,0	0,9	2,8	1,0					224.37.2,73	G.
	2 Canum Venat. ....	188.25	3.60,9	58,8	58,0	54,1	56,0	56,0					188.28.56,88	G.
	$\Sigma$ 1633. p. ....	202.0	4.63,0	61,0	60,2	56,2	58,9	57,8					202.4.58,98	G.
	(c) $\alpha$ Cassiop. SP. R. M. ....	69.55	1.21,5	23,9	16,7	18,5	17,3	20,7					69.53.10,65	G.
	$\alpha$ Cassiopeie SP. ....	105.40	4.40,5	40,1	36,0	36,0	35,6	35,4					105.44.56,77	G.
Apr. 27	$\omega$ Leonis. ....	220.15	1.18,3	19,9	11,2	15,1	16,7	13,2					220.16.15,53	G.

Runs taken April 19, 12<sup>h</sup>. (Temp. 44°), and April 28, 1<sup>h</sup>. (Temp. 66°).Coincidence at the middle wire taken April 28, 1<sup>h</sup>.

(a) Strong southerly winds for a long time prevented reflexion observations south of the zenith.

(b) Extremely faint. No correction for Runs.

(c) Accidentally on the fixed wire.

(d) Faint.

(e) Extremely faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
51,68	42. 28. 46,80	30,146	46,2	43,0	54,53				80. 16. 49,63	- 13,59	* R. 10 <sup>h</sup> . 53 <sup>m</sup> . 58 <sup>s</sup> .
	44. 0. 28,70				57,54				81. 48. 34,52	- 13,91	χ Leonis.
	30. 48. 50,72				35,55				68. 36. 34,55	- 12,64	ε Leonis R.
	30. 48. 49,32								68. 36. 33,35		δ Leonis.
	45. 18. 6,99				1. 0,19				83. 6. 15,46	- 14,87	σ Leonis.
	44. 33. 20,42				42,7				82. 21. 27,38	- 15,54	* R. 11 <sup>h</sup> . 27 <sup>m</sup> . 45 <sup>s</sup> .
51,88	45. 9. 10,95				59,71				82. 51. 18,94	- 15,66	* R. 11 <sup>h</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> .
	19. 42. 30,97	29,958	57,0	57,0	20,62				57. 29. 59,87	+ 11,82	14 Aurigæ.
	25. 5. 37,09	29,908	53,5	51,9	27,20				62. 53. 12,57	+ 5,71	47 Geminorum.
	19. 58. 34,67				21,11				57. 46. 4,06	+ 6,15	Castor R.
	19. 58. 33,87				30,14				57. 46. 3,26	+ 3,03	Castor.
	27. 25. 53,83				39,46				63. 13. 32,25	- 0,91	κ Geminorum.
51,72	34. 4. 53,80		51,4	49,7					71. 52. 41,54		ζ Cancri.
	27. 9. 15,34	29,762	50,7	49,6	29,78				64. 56. 53,40	+ 0,51	υ <sup>1</sup> Cancri.
	44. 33. 19,14	29,966	44,0	41,5	58,50				82. 21. 25,92	- 15,07	* R. 11 <sup>h</sup> . 27 <sup>m</sup> . 45 <sup>s</sup> .
	45. 3. 10,18				59,53				82. 51. 17,99	- 15,22	* R. 11 <sup>h</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> .
	36. 44. 44,05				44,38				74. 32. 36,71	- 14,28	β Leonis R.
	36. 44. 40,81								74. 32. 33,47		β Leonis.
52,64	26. 22. 2,26	29,900	42,8	41,5	29,40				64. 9. 39,91	- 1,55	A.S.C. 1132.
	31. 9. 55,78				35,87				68. 57. 39,93	- 3,71	* R. 9 <sup>h</sup> . 14 <sup>m</sup> . 48 <sup>s</sup> .
	42. 27. 20,74				54,23				80. 15. 23,25	- 7,64	ω Leonis.
	34. 40. 9,84	29,808	49,4	48,2	40,33				72. 27. 58,45	- 7,56	η Leonis.
	42. 43. 56,43				53,84				80. 31. 58,55	- 11,46	49 Leonis.
	32. 11. 47,34	29,792	45,5	44,2	37,00				69. 59. 32,62	- 19,58	Arcturus R.
52,86	32. 11. 45,94				2. 4,39				69. 59. 31,22	- 18,90	Arcturus.
	64. 49. 13,79				26,74				102. 38. 26,46	- 19,63	ι Virginis.
	24. 27. 51,56								62. 15. 26,58		ε Bootis R.
	24. 27. 50,59								62. 15. 25,61		ε Bootis.
	39. 0. 8,78	29,510	45,5	43,1	47,23				76. 48. 4,29	- 7,73	ν Leonis.
	34. 40. 9,68				40,33				72. 27. 58,31	- 6,84	η Leonis.
52,28	41. 57. 55,78	29,522	44,6	42,0	51,97				79. 25. 56,03	- 10,23	45 Leonis.
	28. 2. 20,01				31,16				65. 49. 59,45	- 6,36	Σ 1447.
	46. 57. 13,53				1. 1,85				84. 25. 23,66	- 12,54	35 Sextantis.
	67. 32. 37,40				2. 20,66				103. 22. 6,34	- 18,40	ν Hyd. et Crat. R.
	67. 32. 35,28				29,32				105. 22. 4,22	- 17,23	ν Hyd. et Crat.
	26. 36. 42,04				10,73				64. 24. 19,64	- 7,23	54 Leonis.
53,16	- 10. 23. 29,32				56,87				27. 23. 28,23	+ 2,14	α Ursæ Maj. R.
	- 10. 23. 27,49				49,83				27. 23. 30,06	- 12,99	α Ursæ Majoris.
	44. 12. 27,10				1. 23,40				82. 0. 32,25	- 11,98	* R. 10 <sup>h</sup> . 57 <sup>m</sup> . 54 <sup>s</sup> .
	40. 26. 4,19				1. 17,52				78. 14. 2,30	- 16,23	Σ 1511.
	54. 58. 44,18				1. 5,71				92. 47. 15,86	- 15,85	φ Leonis.
	52. 58. 36,86				4,92				90. 47. 2,66	- 15,01	Σ 1529.
53,76	48. 19. 17,20				1. 19,74				86. 7. 31,19	- 2,01	83 Leonis.
	- 4. 48. 6,81				43,71				32. 58. 56,55	- 16,73	Σ 1533.
	53. 45. 11,34				2,42				91. 33. 39,36	- 13,12	Piazzi XI. 126.
	36. 44. 42,57				1. 2,37				74. 32. 34,56	- 4,07	β Leonis R.
	36. 44. 42,21				11,03				74. 32. 34,20	- 8,74	β Leonis.
	- 2. 21. 46,62				26,43				33. 23. 19,24	- 12,01	γ Ursæ Maj. R.
53,71	- 2. 21. 45,79				2. 59,27				33. 25. 20,07	• 0,20	γ Ursæ Majoris.
	46. 48. 9,39	29,540	43,3	41,3					84. 36. 20,04	- 16,20	* R. 11 <sup>h</sup> . 59 <sup>m</sup> . 25 <sup>s</sup> .
	10. 40. 3,54								48. 27. 22,87	- 12,01	2 Canum Venat.
	24. 16. 5,64								62. 3. 40,35	- 12,01	Σ 1633. p.
	- 72. 4. 17,31								- 34. 20. 8,30		α Cassiop. SP. R.
	- 72. 4. 16,57								- 34. 20. 7,56		α Cassiopeia SP.
	42. 27. 22,19	30,084	61,4	64,6	52,07				80. 15. 22,34	- 7,10	ω Leonis.

Coincidence of Micrometer Wire with fixed Wire = 10",118 at the middle wire. From April 10 = 10",115.

One Micrometer Revolution = 20",854.

Correction for Runs = - 1",8. From April 10 = - 5",2. From April 27 = - 4",5.

Adopted Zenith Point = 177°. 46'. 58". 28. From April 10 = 177°. 46'. 55". 34.

Assumed Co-latitude = 37°. 47'. 8". 28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Apr. 27	$\nu$ Leonis.....	216.45	4. 5,5	8,9	1,2	2,4	5,3	2,1	16,279	- 2. 8,54			216.49. 3,58	G.
	Regulus R. M. ...	318.20	3. 21,2	20,1	12,3	15,9	15,0	19,2					318.21. 8,21	G.
	Regulus.....	217.15	1. 36,9	40,0	30,2	33,0	37,6	35,0					217.16. 35,20	G.
	$\Sigma$ 1447.....	205.50	1. 15,9	17,9	10,0	11,7	14,8	11,0					205.51. 13,35	G.
	35 Sextantis.....	224.25	1. 10,0	13,7	3,9	7,1	10,8	5,8					224.26. 8,37	G.
	A.S.C. 1322.....	221. 5	0. 18,0	21,4	13,3	16,6	19,5	13,8					221. 5. 17,05	G.
	$\phi$ Leonis.....	232.45	2. 40,3	43,3	35,0	37,8	40,9	37,1					232.47. 38,65	G.
	$\Sigma$ 1529.....	230.45	2. 32,6	34,4	25,2	28,9	31,8	28,4					230.47. 29,82	G.
	$\sigma$ Leonis.....	223. 5	1. 63,6	65,8	58,0	59,9	64,0	59,6					223. 7. 1,50	G.
	(a) $\Sigma$ 1541 M.....	182.50	1. 19,7	21,9	16,0	15,8	18,2	16,7	9,699	+ 8,68			182.51. 26,53	G.
	83 Leonis.....	226. 5	3. 14,4	16,0	8,2	10,8	14,2	10,0					226. 8. 11,79	G.
	57 Ursæ Majoris..	189.45	3. 58,2	58,1	53,2	52,8	56,3	53,1					189.48. 55,16	G.
	$\Sigma$ 1553. np.....	173. 0	0. 46,5	47,6	41,0	42,4	45,1	42,0					173. 0. 43,98	G.
	Piazzi XI. 126....	231.30	4. 10,1	10,8	3,3	5,0	8,8	5,5					231.34. 6,58	G.
	$\beta$ Leonis R. M....	321. 0	4. 36,9	37,4	29,7	32,8	32,8	33,9					321. 4. 8,82	G.
	$\beta$ Leonis.....	214.30	3. 39,6	38,3	32,0	32,2	36,7	33,0					214.33. 34,72	G.
	$\gamma$ Ursæ Maj. R. M.	0.10	2. 23,8	23,0	18,7	20,4	20,0	20,3					0.10. 39,20	G.
	$\gamma$ Ursæ Majoris...	175.25	2. 7,1	7,0	2,8	2,8	5,3	2,3					175.27. 4,22	G.
Apr. 28	$\Sigma$ 1447.....	205.50	1. 16,0	17,4	8,8	12,6	13,4	11,8	9,859	+ 5,34			205.51. 13,13	G.
	35 Sextantis. nf...	224.25	1. 10,3	11,7	3,2	5,4	6,1	6,3					224.26. 6,98	G.
	$\nu$ Hyd. et Crat. R. M.	290.15	1. 10,3	11,2	3,8	6,3	4,8	5,1					290.16. 12,07	G.
	$\nu$ Hydræ et Crat....	245.20	1. 34,4	34,1	26,0	29,3	28,9	29,8					245.21. 30,18	G.
	54 Leonis.....	204.25	0. 37,9	37,0	30,7	33,4	34,6	33,1					204.25. 34,35	G.
	* $\mathcal{R}$ . 10 <sup>h</sup> . 53 <sup>m</sup> . 58 <sup>s</sup> .	220.15	2. 43,8	43,2	35,9	38,8	42,0	38,7					220.17. 39,98	G.
	(b) * $\mathcal{R}$ . 10 <sup>h</sup> . 57 <sup>m</sup> . 54 <sup>s</sup> .	222. 0	1. 22,7	22,2	15,6	19,0	20,8	19,1					222. 1. 19,70	G.
	$\Sigma$ 1511. sf.....	218.10	4. 58,7	59,0	53,1	54,6	57,1	54,0					218.14. 55,28	G.
	Polaris SP. R. M.	37. 5	4. 33,5	34,1	26,0	28,6	31,0	30,2					37. 7. 28,23	G.
	Polaris SP.....	138.30	0. 22,3	22,9	16,0	17,4	16,9	17,2					138.30. 18,73	G.
	53 Virginis.....	245.20	0. 8,0	7,8	1,6	3,4	2,9	2,9					245.20. 4,42	G.
Apr. 29	* $\mathcal{R}$ . 10 <sup>h</sup> . 57 <sup>m</sup> . 54 <sup>s</sup> .	222. 0	1. 22,2	21,4	15,6	19,4	18,9	17,8	27,255	- 5. 57,44			222. 1. 19,02	G.
	$\Sigma$ 1511.....	218.10	4. 53,5	58,8	54,1	53,5	56,0	54,0					218.14. 55,03	G.
	A.S.C. 1322.....	221. 5	0. 18,3	18,9	12,8	14,9	14,7	13,3					221. 5. 15,43	G.
	$\phi$ Leonis.....	232.45	2. 40,8	41,0	34,2	36,0	37,0	36,1					232.47. 37,10	G.
	$\Sigma$ 1529. nf.....	230.45	2. 32,1	32,0	25,2	28,0	30,0	27,9					230.47. 28,80	G.
	(c) $\Sigma$ 1541 M.....	182.55	2. 29,0	28,2	23,8	24,3	23,4	25,6					182.51. 27,89	G.
	83 Leonis.....	226. 5	3. 13,8	13,0	7,5	9,8	10,3	8,6					226. 8. 10,02	G.
	$\Sigma$ 1553. np.....	173. 0	0. 46,9	48,2	43,8	44,4	42,6	43,8					173. 0. 44,83	G.
	Piazzi XI. 126....	231.30	4. 7,6	8,2	3,5	3,7	4,0	3,7					231.34. 4,47	G.
	Spica R. M.....	295.15	0. 32,3	30,9	27,3	27,2	26,3	25,9					295.17. 49,58	G.
	(d) Spica.....	240.15	4. 61,3	57,8	54,5	56,0	55,1	55,4					240.19. 56,57	G.
	$\alpha$ Androm. R. M..	333.50	0. 18,1	19,3	13,2	16,2	12,7	13,9					333.49. 11,44	G.
	$\alpha$ Andromedæ. ...	201.45	3. 38,8	37,9	34,3	33,1	33,5	32,4					201.48. 34,43	G.
	Polaris R. M. ....	34. 0	4. 26,2	27,6	21,1	21,1	21,0	21,0					34. 3. 3,58	G.
May 5	Polaris.....	141.30	4. 47,4	46,2	43,4	42,8	43,7	41,1	13,890	- 1. 18,72			141.34. 43,35	G.
	$\Sigma$ 1561.....	184. 0	2. 28,3	27,9	23,3	23,4	22,8	24,1					184. 2. 24,93	G.
	$\nu$ Virginis.....	222.35	0. 53,2	52,5	47,8	48,5	49,4	48,9					222.35. 50,03	G.
	(c) * $\mathcal{R}$ . 11 <sup>h</sup> . 38 <sup>m</sup> . 34 <sup>s</sup> .	223.15	0. 27,1	26,5	21,1	21,8	24,4	23,2					223.15. 24,02	G.
	$\gamma$ Ursæ Maj. R. M.	0.10	1. 36,6	38,0	33,1	33,9	33,3	32,0					0.10. 42,94	G.
	$\gamma$ Ursæ Majoris...	175.25	2. 8,7	7,4	4,9	4,8	3,9	4,1					175.27. 5,60	G.
	* $\mathcal{R}$ . 11 <sup>h</sup> . 54 <sup>m</sup> . 17 <sup>s</sup> .	224.50	4. 41,8	40,3	37,0	36,0	39,8	36,9					224.54. 38,55	G.
	2 Comæ Berenices.	207.40	0. 43,1	43,0	38,0	39,2	39,8	39,2					207.40. 40,37	G.
	* $\mathcal{R}$ . 11 <sup>h</sup> . 59 <sup>m</sup> . 25 <sup>s</sup> .	224.35	2. 7,0	6,3	0,4	2,7	1,8	0,9					224.37. 3,15	G.
	2 Canum Venat. ...	188.25	3. 58,9	56,7	54,7	53,8	53,0	53,3					188.28. 55,00	G.
	$\Sigma$ 1632 M.....	191.10	4. 27,9	25,4	23,0	22,9	23,1	24,1					191.14. 29,83	G.
	$\Sigma$ 1633. sp.....	202. 0	4. 62,4	61,2	58,9	56,2	58,2	56,8					202. 4. 58,87	G.
	$\Sigma$ 1653. np.....	197. 5	1. 25,7	24,1	20,3	20,0	18,2	19,6					197. 6. 21,30	G.
	$\Sigma$ 1661. sp.....	217.40	4. 9,2	8,0	4,7	3,0	5,5	3,7					217.44. 5,62	G.
	Polaris SP. R. M.	37. 5	4. 15,1	16,9	9,6	12,4	11,3	12,4					37. 7. 31,47	G.
	Polaris SP.....	138.30	0. 19,2	18,5	13,5	14,9	14,0	14,0					138.30. 15,68	G.

Runs taken May 6, 9<sup>h</sup>. (Temp. 49°.) Coincidence at the middle wire taken May 7, 2<sup>h</sup>.

(a) Taken with the Micrometer, the interval between this and the next observation being very small. (b) Another star of 5' greater N.P.D. was seen in the field, which most probably was  $\Sigma$  1507, the star intended to be taken. (c) See note April 27. (d) No correction for Runs. (e) Mistaken for the star (p) in the Nautical Almanac of 1839, p. 552.

Sec. of Apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	inch.	"	"	" "	" "	"	" "	" " "	"	"
51,71	39. 0. 10,24	30,088	61,4	62,8	46,26				76. 48. 4,78	- 7,54	♄ Leonis.
	39. 27. 45,13				47,03				77. 15. 40,44	- 8,30	Regulus R.
	39. 27. 41,86								77. 15. 37,17		Regulus.
	28. 2. 20,01	30,100	60,3	62,0	30,50				63. 49. 58,79	- 6,00	Σ 1447.
	46. 37. 15,03				1. 0,54				84. 25. 23,85	- 12,37	35 Sextantis.
	43. 16. 23,71			60,7	54,02				81. 4. 26,01	- 12,88	A.S.C. 1322.
	54. 58. 45,31				1. 21,75				92. 47. 15,34	- 16,19	♄ Leonis.
	52. 58. 36,48				1. 15,99				90. 47. 0,75	- 15,79	Σ 1529.
	45. 18. 8,16				57,97				83. 6. 14,41	- 13,73	♄ Leonis.
	5. 2. 33,19			60,3	5,07				42. 49. 46,54	- 2,92	Σ 1541.
	48. 19. 18,45				1. 4,46				86. 7. 31,19	- 14,83	83 Leonis.
	12. 0. 1,82				12,22				49. 47. 22,32	- 4,86	57 Ursæ Majoris.
	- 4. 48. 9,36				4,83				32. 58. 54,09	- 1,23	Σ 1553. <i>np.</i>
	53. 45. 13,24				1. 18,23				91. 33. 39,75	- 16,66	Piazzi XI. 126.
51,77	36. 44. 44,52				42,89				74. 32. 35,69	- 12,76	β Leonis R.
51,71	36. 44. 41,38								74. 32. 32,55		β Leonis.
	- 2. 21. 45,86				2,37				35. 25. 20,05	- 3,27	γ Ursæ Maj. R.
	- 2. 21. 49,12								35. 25. 16,79		γ Ursæ Majoris.
51,13	28. 2. 19,79	30,104	61,0	60,1	30,62				63. 49. 58,69	- 5,91	Σ 1447.
	46. 37. 13,64				1. 0,78				84. 25. 22,70	- 12,35	35 Sextantis. <i>nf.</i>
	67. 32. 41,27				2. 18,16				105. 22. 7,71	- 18,59	♄ Hyd. et Crat. R.
	67. 32. 36,84								105. 22. 3,28		♄ Hyd. et Crat.
	26. 36. 41,01				28,80				64. 24. 18,09	- 6,71	54 Leonis.
	42. 28. 46,64				52,61				80. 16. 47,53	- 12,04	* R. 10 <sup>h</sup> . 53 <sup>m</sup> . 58 <sup>s</sup> .
	44. 12. 26,36				55,88				82. 0. 30,52	- 12,73	* R. 10 <sup>h</sup> . 57 <sup>m</sup> . 54 <sup>s</sup> .
	40. 26. 1,94				48,96				78. 13. 59,18	- 11,65	Σ 1511. <i>cf.</i>
	- 39. 18. 34,89	30,098	57,0	55,0	47,52				- 1. 32. 14,13	+ 3,79	Polaris SP. R.
	- 39. 18. 34,61								- 1. 32. 13,85		Polaris SP.
53,48	67. 31. 11,08				2. 19,40				105. 20. 38,76	- 20,48	53 Virginis.
	44. 12. 23,68	30,150	54,8	52,3	56,85				82. 0. 30,81	- 12,66	* R. 10 <sup>h</sup> . 57 <sup>m</sup> . 54 <sup>s</sup> .
	40. 26. 1,69				49,82				78. 13. 59,79	- 11,60	Σ 1511.
	43. 16. 22,09				55,03				81. 4. 25,40	- 12,77	A.S.C. 1322.
	54. 58. 43,76				1. 23,30				92. 47. 15,34	- 16,16	♄ Leonis.
	52. 58. 35,46				1. 17,42				90. 47. 1,16	- 15,73	Σ 1529.
	5. 2. 34,55				5,16				42. 49. 47,99	- 2,60	Σ 1541.
	48. 19. 16,68				1. 5,62				86. 7. 30,58	- 14,75	83 Leonis.
	- 4. 48. 8,51				4,92				32. 58. 54,85	- 0,84	Σ 1553. <i>np.</i>
	53. 45. 11,13				1. 19,63				91. 33. 39,04	- 16,62	Piazzi XI. 126.
53,08	62. 31. 3,76		51,0	47,2	1. 53,16				100. 20. 5,20	- 19,93	Spica R.
52,94	62. 31. 3,23								100. 20. 4,67		Spica.
	23. 59. 41,90	30,156	53,7	55,0	25,90				61. 47. 16,08	- 0,70	α Andromedæ R.
53,47	23. 59. 41,09								61. 47. 15,27		α Andromedæ.
	- 36. 14. 10,24	30,170	57,4	57,8	42,41				1. 32. 15,63	+ 3,44	Polaris R.
	- 36. 14. 9,99								1. 32. 15,88		Polaris.
54,27	6. 13. 31,59	29,526	56,2	55,0	6,22				44. 0. 46,09	- 2,77	Σ 1561.
	44. 46. 36,69				56,50				82. 35. 1,47	- 14,15	♄ Virginis.
	45. 26. 30,68				57,81				83. 14. 36,77	- 14,46	* R. 11 <sup>h</sup> . 38 <sup>m</sup> . 34 <sup>s</sup> .
	- 2. 21. 49,60				2,35				35. 25. 16,33	- 1,75	γ Ursæ Maj. R.
	- 2. 21. 47,74								35. 25. 18,19		γ Ursæ Majoris.
	47. 5. 45,21				1. 1,24				84. 53. 54,75	- 15,43	* R. 11 <sup>h</sup> . 54 <sup>m</sup> . 17 <sup>s</sup> .
	29. 51. 47,03				32,71				67. 39. 28,02	- 10,78	2 Comæ Beren.
	46. 48. 9,81				1. 0,61				84. 36. 18,70	- 15,34	* R. 11 <sup>h</sup> . 59 <sup>m</sup> . 25 <sup>s</sup> .
	10. 40. 1,96				10,73				48. 27. 20,67	- 6,46	2 Canum Venat.
	13. 25. 36,49				13,61				51. 12. 58,38	- 7,41	Σ 1632.
	24. 16. 5,53				25,69				62. 5. 39,50	- 10,18	Σ 1633. <i>np.</i>
	19. 17. 27,96	29,536	55,0	54,4	19,98				57. 4. 56,22	- 9,65	Σ 1653. <i>np.</i>
	39. 55. 12,81				47,72				77. 45. 8,28	- 14,80	Σ 1661. <i>np.</i>
	- 39. 18. 38,13			53,7	46,77				- 1. 32. 16,62	+ 2,04	Polaris SP. R.
53,58	- 39. 18. 37,66								- 1. 32. 16,15		Polaris.

Coincidence of Micrometer Wire with fixed Wire = 107,115 at the middle wire. From May 3 = 107,120.

One Micrometer Revolution = 20",854.

Correction for Runs = - 4",8. From May 3 = - 0",3.

Adopted Zenith Point = 177°. 48'. 53". 34.

Assumed Co-latitude = 37°. 47'. 8". 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.  " ' "	Observer.				
			A	B	C	D	E	F										
			" "	" "	" "	" "	" "	" "										
May 5	53 Virginis.....	245.20	0.13,8	13,9	7,4	9,0	7,1	8,4	18,636	-2.57,60	+3	-0,37	245.20.9,56	G.				
	(a) * $\alpha$ . 13 <sup>h</sup> . 8 <sup>m</sup> . 42 <sup>s</sup> ..	211.50	2.55,0	54,1	50,9	49,4	52,3	49,6					211.52.51,83	G.				
	(b) * $\alpha$ . 13 <sup>h</sup> . 25 <sup>m</sup> . 58 <sup>s</sup> ..	237.45	3.28,7	28,1	22,7	23,9	24,0	24,9					237.48.25,33	G.				
	1 Bootis.....	209.15	0.43,9	43,2	39,0	39,2	40,2	38,5					209.15.40,65	G.				
	$\eta$ Ursæ Maj. R. M.	355.45	0.23,9	25,0	19,8	22,2	21,0	20,3					355.42.24,43	G.				
	$\eta$ Ursæ Majoris...	179.55	0.24,8	23,0	19,5	20,8	18,3	19,2					179.55.20,93	G.				
	May 6	* $\alpha$ . 11 <sup>h</sup> . 54 <sup>m</sup> . 17 <sup>s</sup> ..	224.50	4.41,5	38,5	34,7	35,0	37,5					36,2	9,188	+19,44			224.54.37,15
2 Comæ Berenices.		207.40	0.43,4	41,8	37,0	37,9	38,0	38,7	207.40.39,45	G.								
* $\alpha$ . 11 <sup>h</sup> . 59 <sup>m</sup> . 25 <sup>s</sup> ..		224.35	2.6,8	3,4	0,0	0,0	0,1	0,2	224.37.1,72	G.								
$\Sigma$ 1608. $\eta$ f.....		175.40	3.11,1	9,0	7,3	6,1	4,9	6,4	175.43.7,42	G.								
2 Canum Venat...		188.25	3.59,6	56,1	54,9	53,2	53,0	53,0	188.28.54,90	G.								
(c) $\Sigma$ 1632 M.....		191.10	4.15,1	11,7	10,1	9,1	8,7	10,1	191.14.30,17	G.								
$\Sigma$ 1633. sp.....		202.0	4.62,7	58,2	57,6	54,5	55,5	55,7	202.4.57,28	G.								
(d) $\Sigma$ 1653. np.....		197.5	1.26,9	23,0	20,3	19,3	17,5	19,7	197.6.21,10	G.								
(e) $\Sigma$ 1661.....		217.40	4.8,2	5,5	3,8	0,6	4,0	2,2	217.44.3,98	G.								
Piazzi XII. 201...		209.55	4.24,0	19,4	17,5	16,3	17,9	16,8	209.59.18,58	G.								
(f) 42 Virginis (?)...		221.15	3.62,8	59,9	56,9	55,6	56,9	56,8	221.18.58,08	G.								
Polaris SP. R. M.		37.5	3.19,7	21,1	12,9	17,1	15,0	16,1	37.7.32,05	G.								
Polaris SP.....		138.30	0.22,7	20,0	15,1	16,8	13,2	15,8	138.30.17,27	G.								
$\eta$ Ursæ Maj. R. M.		355.40	3.30,9	31,7	26,8	28,5	29,0	27,7	355.42.27,05	G.								
$\eta$ Ursæ Majoris...		179.55	0.25,8	21,1	19,9	19,8	17,2	19,3	179.55.20,52	G.								
$\Sigma$ 1790. sp.....		233.50	0.52,8	50,0	45,8	45,9	46,5	46,4	233.50.47,88	G.								
(c) Piazzi XIII. 277..		176.5	4.11,1	6,3	6,8	4,8	2,8	4,7	176.9.6,02	G.								
(g) $\Sigma$ 1804.....		208.0	4.19,6	14,9	13,3	10,5	12,1	12,0	208.4.13,67	G.								
$\kappa$ Bootis.....		177.25	4.52,9	48,1	49,4	46,0	45,0	46,8	177.29.48,15	G.								
$\Sigma$ 1825.....		209.5	4.29,7	25,4	23,5	22,0	23,9	23,3	209.9.24,57	G.								
$\Sigma$ 1830 M.....		172.30	4.62,3	57,2	56,8	53,2	55,5	54,8	172.37.16,29	G.								
$\Sigma$ 1831.....		172.30	4.62,3	57,2	56,8	53,2	55,5	54,8	172.34.56,55	G.								
$\Sigma$ 1858. sp.....		193.40	4.43,0	39,0	37,6	34,8	37,1	36,7	193.44.37,95	G.								
$\Sigma$ 1878.....		168.5	0.44,1	40,0	38,3	37,0	38,8	37,5	168.5.39,27	G.								
$\Sigma$ 1882.....		168.15	0.51,0	47,8	45,4	44,0	44,0	44,0	168.15.46,02	G.								
$\beta$ Ursæ Min. R. M.		20.25	0.26,3	26,1	19,9	23,0	19,2	22,1	20.23.45,17	G.								
$\beta$ Ursæ Minoris ..		155.10	4.9,8	5,8	5,6	2,4	3,0	3,0	155.14.4,87	G.								
May 12	Polaris R. M.....	34.0	4.26,9	28,1	21,8	22,9	21,7	21,8	14,044	-1.21,92			34.3.1,88	G.				
	Polaris.....	141.30	4.51,2	50,2	46,0	45,3	46,4	44,1					141.34.47,12	G.				
May 14	2 Comæ Berenices.	207.40	0.42,2	41,2	36,2	37,8	37,1	36,6	11,022	-18,90			207.40.38,50	G.				
	(e) $\Sigma$ 1632.....	191.10	4.32,0	30,0	27,6	26,4	26,7	25,8					191.14.28,02	G.				
	$\Sigma$ 1653. np.....	197.5	1.23,1	21,5	17,8	17,1	16,1	15,8					197.6.18,55	G.				
	$\Sigma$ 1661.....	217.40	4.8,0	7,2	2,3	1,8	3,0	1,7					217.44.3,93	G.				
	Piazzi XII. 202...	209.55	4.6,3	5,5	3,0	1,1	2,1	0,1					209.59.2,95	G.				
	(h) 42 Virginis M....	221.15	4.22,3	20,0	15,0	16,2	15,9	14,7					221.18.58,38	G.				
	$\Sigma$ 1690.....	234.0	0.46,0	45,0	38,8	39,9	40,1	39,3					234.0.41,50	G.				
	(i) Polaris SP. R. M.	37.10	0.35,9	38,3	29,2	34,1	31,6	32,7					+0,43	37.7.33,23	G.			
	(i) Polaris.....	138.30	0.21,1	19,9	14,6	14,8	13,6	13,9						138.30.15,98	G.			
	(k) $\Sigma$ 1727. s.....	197.45	3.34,0	32,0	28,0	27,9	28,0	28,0					-0,34	197.48.29,60	G.			
	(l) * $\alpha$ . 13 <sup>h</sup> . 8 <sup>m</sup> . 42 <sup>s</sup> ..	211.50	2.53,1	51,6	47,7	46,4	46,7	46,4						211.52.48,60	G.			
	* $\alpha$ . 13 <sup>h</sup> . 25 <sup>m</sup> . 58 <sup>s</sup> ..	237.45	3.26,2	26,1	20,0	21,6	20,8	21,0						237.48.22,57	G.			
	1 Bootis.....	209.15	0.41,8	40,8	35,8	36,4	38,4	34,9						209.15.38,00	G.			
	$\Sigma$ 1790 sp.....	233.50	0.49,4	48,2	42,9	44,0	43,3	43,5						233.50.45,20	G.			
	Piazzi XIII. 277..	176.5	4.9,0	5,4	5,1	3,0	1,8	2,5						176.9.4,40	G.			
	$\Sigma$ 1804.....	208.0	4.17,8	14,9	12,1	9,9	13,8	9,8						208.4.12,98	G.			
	$\kappa$ Bootis.....	177.25	4.51,0	47,9	47,9	45,0	44,9	44,7						177.29.46,82	G.			
	* $\alpha$ . 14 <sup>h</sup> . 10 <sup>m</sup> . 52 <sup>s</sup> ..	172.35	0.66,2	63,2	61,1	60,3	59,1	58,1						172.36.1,32	G.			
	$\Sigma$ 1831 M.....	172.35	0.66,2	63,2	61,1	60,3	59,1	58,1						172.34.54,62	G.			
	4 Scorpii M.....	255.40	3.24,0	22,4	18,3	18,4	18,0	19,7					13,314	-1.6,70	+2	-0,29	255.44.58,57	G.
	$\zeta$ Ursæ Min. R. M.	23.50	3.24,0	25,5	20,2	21,2	18,1	21,1									23.52.11,12	G.
	$\zeta$ Ursæ Minoris...	151.45	0.44,7	42,1	39,2	38,1	36,9	38,6									151.45.39,92	G.

Coincidence at the middle wire taken May 21, 1<sup>h</sup>.

(a) Taken for  $\Sigma$  1733. (b) A double star, but not seen double. (c) Not seen double. (The companion is very small.) (d) Very faint. (e) Not seen double. (f) Extremely faint and difficult. Magnitude 9, 10. (g) Seemed to be of the 7th magnitude. (h) Extremely difficult: about the 10th magnitude.  $\alpha$ . 12<sup>h</sup>. 47<sup>m</sup>. 13<sup>s</sup>. (i) The times of observation by Molyneux, 12<sup>h</sup>. 58<sup>m</sup>. 40<sup>s</sup>. and 12<sup>h</sup>. 59<sup>m</sup>. 0<sup>s</sup>. Molyneux fast on Hardy, 32<sup>s</sup>. (k) Extremely faint. The observer thought he saw it double, and that he took the south star. (The larger is s.) (l) Doubtful whether seen double. (This is not  $\Sigma$  1733.)

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
52,68	67. 31. 16,22	29,536	55,0	53,7	2. 17,18				105. 20. 41,68	- 20,77	53 Virginis.
	34. 3. 58,49				38,63				71. 51. 45,40	- 14,96	* R. 13 <sup>h</sup> . 8 <sup>m</sup> . 42 <sup>s</sup> .
	59. 59. 31,99				1. 38,62				97. 48. 18,89	- 19,63	* R. 13 <sup>h</sup> . 23 <sup>m</sup> . 58 <sup>s</sup> .
	31. 26. 47,31				34,94				69. 14. 30,53	- 15,29	1 Bootis.
	2. 6. 28,91				2,10				39. 53. 39,29	- 10,85	$\eta$ Ursae Maj. R.
	2. 6. 27,59								39. 53. 37,97		$\eta$ Ursae Majoris.
54,66	47. 5. 43,81	29,700	52,4	49,4	1. 2,30				84. 53. 54,39	- 15,38	* R. 11 <sup>h</sup> . 54 <sup>m</sup> . 17 <sup>s</sup> .
	29. 51. 46,11				33,28				67. 39. 27,67	- 10,66	2 Comae Beren.
	46. 48. 8,38				1. 1,67				84. 36. 18,33	- 15,47	* R. 11 <sup>h</sup> . 59 <sup>m</sup> . 25 <sup>s</sup> .
	- 2. 5. 45,92				2,12				35. 41. 20,24	- 2,88	$\Sigma$ 1608. <i>np.</i>
	10. 40. 1,56				10,92				48. 27. 20,76	- 6,28	2 Canum Venat.
	13. 25. 36,83				13,84				51. 12. 58,95	- 7,23	$\Sigma$ 1632.
	24. 16. 3,94				26,13				62. 3. 38,35	- 10,05	$\Sigma$ 1633. <i>sp.</i>
	19. 17. 27,76				20,29				57. 4. 56,33	- 9,49	$\Sigma$ 1653. <i>np.</i>
	39. 55. 10,64				48,47				77. 43. 7,89	- 14,69	$\Sigma$ 1661.
	32. 10. 25,24			48,0	36,57				69. 58. 10,09	- 13,49	Piazzi XII. 201.
	43. 30. 4,74				55,13				81. 18. 8,15	- 16,09	42 Virginis (?)
	- 39. 18. 38,71				47,58				- 1. 32. 18,01		Polaris SP. R.
	- 39. 18. 36,07								- 1. 32. 15,37	+ 1,79	Polaris SP.
	2. 6. 26,29	29,710	51,0	47,4	2,14				39. 53. 36,71	- 10,60	$\eta$ Ursae Maj. R.
	2. 6. 27,18								39. 53. 37,60		$\eta$ Ursae Majoris.
	56. 1. 54,54				1. 26,22				93. 50. 29,04	- 19,04	$\Sigma$ 1790. <i>sp.</i>
	- 1. 39. 47,32				1,69				36. 7. 19,27	- 10,76	Piazzi XIII. 277.
	30. 15. 20,33				33,96				68. 3. 2,57	- 15,84	$\Sigma$ 1804.
	- 0. 19. 5,19				0,32				37. 28. 2,77	- 11,89	$\alpha$ Bootis.
	31. 20. 31,23				35,45				69. 8. 14,96	- 16,22	$\Sigma$ 1825.
	- 5. 11. 37,05				5,29				32. 35. 25,94	- 11,43	$\Sigma$ 1830.
	- 5. 13. 56,79				5,33				32. 33. 6,16	- 11,43	$\Sigma$ 1831.
	15. 55. 44,61				16,62				53. 43. 9,51	- 14,98	$\Sigma$ 1858. <i>sp.</i>
	- 9. 43. 14,07			46,8	9,99				28. 3. 44,22	- 12,65	$\Sigma$ 1878.
	- 9. 33. 7,32				9,81				28. 13. 51,15	- 12,79	$\Sigma$ 1882.
	- 22. 34. 51,83				24,25				15. 11. 52,20	- 12,12	$\beta$ Ursae Min. R.
	- 22. 34. 48,47								15. 11. 53,56		$\beta$ Ursae Minoris.
54,50	- 36. 14. 8,54	30,292	54,0	54,7	42,85				1. 32. 16,89		Polaris R.
	- 36. 14. 6,22								1. 32. 19,21	+ 0,34	Polaris.
54,61	29. 51. 45,16	30,230	56,2	54,7	33,51				67. 39. 26,95	- 9,73	2 Comae Beren.
	13. 25. 34,68				13,94				51. 12. 56,90	- 5,91	$\Sigma$ 1632.
	19. 17. 25,21				20,43				57. 4. 53,92	- 8,19	$\Sigma$ 1653. <i>np.</i>
	39. 55. 10,59				48,81				77. 43. 7,68	- 13,92	$\Sigma$ 1661.
	32. 10. 9,61		54,7	52,9	36,82				69. 57. 54,71	- 12,41	Piazzi XII. 202.
	43. 30. 5,04				55,51				81. 18. 8,83	- 15,40	42 Virginis.
	56. 11. 48,16				1. 27,23				94. 0. 23,67	- 18,53	$\Sigma$ 1690.
	- 39. 18. 39,89				47,91				- 1. 32. 19,52		Polaris SP. R.
	- 39. 18. 37,36								- 1. 32. 16,99	+ 0,04	Polaris.
	19. 59. 36,26				21,30				57. 47. 5,84	- 10,17	$\Sigma$ 1727. <i>r.</i>
	34. 3. 55,26				39,57				71. 51. 43,11	- 15,73	* R. 13 <sup>h</sup> . 8 <sup>m</sup> . 42 <sup>s</sup> .
	59. 59. 29,23				1. 41,17				97. 48. 18,68	- 19,49	* R. 13 <sup>h</sup> . 23 <sup>m</sup> . 58 <sup>s</sup> .
	31. 26. 44,66			52,2	35,86				69. 14. 28,80	- 13,88	1 Bootis.
	56. 1. 51,86				1. 26,81				93. 50. 26,95	- 18,73	$\Sigma$ 1790. <i>sp.</i>
	- 1. 39. 48,94				1,70				36. 7. 17,64	- 8,63	Piazzi XIII. 277.
55,52	30. 15. 19,64	30,168	50,4	48,5	34,19				68. 3. 2,11	- 14,48	$\Sigma$ 1804.
	- 0. 19. 6,52				0,33				37. 28. 1,43	- 9,69	$\alpha$ Bootis.
	- 5. 12. 52,02				5,35				32. 34. 10,91	- 9,16	* R. 14 <sup>h</sup> . 10 <sup>m</sup> . 58 <sup>s</sup> .
	- 5. 13. 58,72				5,37				32. 33. 4,19		$\Sigma$ 1831.
	77. 56. 5,23				4. 29,33				115. 47. 42,84	- 15,96	$\delta$ Scorpii.
	- 26. 3. 17,78				28,84				11. 43. 21,66	- 12,88	$\zeta$ Ursae Min. R.
	- 26. 3. 13,42								11. 43. 26,92		$\zeta$ Ursae Minoris.

Coincidence of Micrometer Wire with fixed Wire = 10', 120 and 10', 124 at middle and 4th wires. From May 12 = 10', 116 and 10', 126 at middle and 5th wires.

One Micrometer Revolution = 20'', 854.

Correction for Run = - 0'', 5.

Adopted Zenith Point = 177°. 48'. 53'', 34.

Assumed Co-latitude = 37°. 47'. 8'', 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
May 15	Σ 1727 .....	197.45	3.32,0	34,2	26,5	28,9	29,7	27,5					197.48.29,32	G.
	* R. 13 <sup>h</sup> . 8 <sup>m</sup> . 42 <sup>s</sup> ..	211.50	2.52,7	55,6	46,4	48,2	49,8	47,0					211.52.49,57	G.
	* R. 13 <sup>h</sup> . 25 <sup>m</sup> . 58 <sup>s</sup> ..	237.45	3.26,8	28,0	20,0	22,4	23,0	22,2					237.48.23,27	G.
	1 Bootis.....	209.15	0.41,7	44,2	36,2	38,0	41,3	36,5					209.15.39,55	G.
	η Ursæ Maj. R. M. ....	355.40	3.23,9	25,5	18,8	20,3	21,0	19,2	12,680	-53,47			355.42.27,51	G.
	η Ursæ Majoris....	179.55	0.21,3	22,2	16,4	18,2	17,2	16,4					179.55.18,58	G.
	Σ 1790. sp. ....	233.50	0.52,0	53,3	44,6	46,8	48,7	46,7					233.50.48,57	G.
	(a) Piazzi XII. 277. .	176.5	4.7,2	7,1	3,0	3,0	2,4	1,8					176.9.3,53	G.
	α Draconis R. M. .	10.40	4.17,6	19,3	12,2	14,0	14,0	12,5	10,923	-16,83			10.43.57,52	G.
	α Draconis. ....	164.50	3.54,4	53,8	51,1	49,0	50,9	49,5					164.53.50,92	G.
	Arcturus R. M....	325.30	4.34,9	35,8	29,6	30,9	31,6	31,3	2,506	+2.38,70			325.37.10,43	G.
	Arcturus.....	210.0	0.38,9	38,7	32,9	34,2	36,0	33,8					210.0.35,67	G.
	(b) Σ 1830 M.....	172.35	0.64,7	64,2	59,3	60,5	59,8	58,0	6,678	+1.11,90	+2	+0,94	172.37.13,79	G.
	(b) * R. 14 <sup>h</sup> . 10 <sup>m</sup> . 52 <sup>s</sup> ..	172.35	0.64,7	64,2	59,3	60,5	59,8	58,0					172.36.0,95	G.
	(b) Σ 1831 M.....	172.35	0.64,7	64,2	59,3	60,5	59,8	58,0	13,351	-1.7,46			172.34.53,49	G.
	Σ 1838. np.....	218.0	2.48,8	49,3	42,8	44,0	45,5	43,4					218.2.45,27	G.
	Σ 1858. ....	193.40	4.39,3	37,9	34,5	33,3	35,2	34,6					193.44.35,17	G.
	Σ 1878. ....	168.5	0.39,0	38,8	33,2	34,9	35,2	33,9					168.5.35,75	G.
	Σ 1882. ....	168.15	0.47,4	46,8	41,8	42,4	42,2	41,3					168.15.43,55	G.
May 18	κ Draconis R. M. .	16.15	1.23,0	23,2	16,8	18,8	16,3	16,8	11,920	-37,68	-1	-0,43	16.15.40,86	G.
	κ Draconis. ....	159.20	2.12,0	10,1	7,2	6,1	5,1	4,4					159.22.7,20	G.
	α Cassiop. SP. R. M. .	69.55	1.27,1	26,8	20,2	22,3	20,4	21,9	18,981	-3.4,86			69.53.18,07	G.
	α Cassiopeiæ SP. .	105.40	4.35,9	32,6	28,2	29,2	28,0	27,4					105.44.29,60	G.
	Piazzi XII. 202....	209.55	4.6,7	5,1	2,5	0,8	3,6	0,0					209.59.2,57	G.
	(a) Σ 1690. ....	234.0	0.45,7	43,9	39,2	38,4	39,7	39,2					234.0.40,93	G.
	(c) Polaris SP. R. M. .	37.10	0.32,8	35,2	27,0	31,1	28,9	30,1	18,557	-2.56,02			37.7.34,76	G.
	Polaris SP. ....	138.30	0.19,0	18,0	11,8	13,1	11,2	11,9					138.30.14,13	G.
	η Ursæ Maj. R. M. ....	355.40	1.38,3	39,2	34,6	35,4	34,0	33,8	7,575	+52,99			355.42.28,66	G.
	η Ursæ Majoris....	179.55	0.22,9	20,4	16,8	18,1	13,4	15,7					179.55.17,85	G.
	Σ 1804. ....	208.0	4.17,9	14,1	12,0	10,1	12,2	11,1					208.4.12,33	G.
	κ Bootis.....	177.25	4.49,6	46,8	45,2	43,7	43,5	43,3					177.29.44,70	G.
	(d) Σ 1830. ....	172.35	2.16,7	14,2	11,4	10,0	8,9	9,6					172.37.11,50	G.
	(d) * R. 14 <sup>h</sup> . 10 <sup>m</sup> . 52 <sup>s</sup> ..	172.35	2.16,7	14,2	11,4	10,0	8,9	9,6	13,540	-1.11,40			172.36.0,10	G.
	(d) Σ 1831 M.....	172.35	2.16,7	14,2	11,4	10,0	8,9	9,6	16,800	-2.17,88			172.34.53,62	G.
	Σ 1838. np.....	218.0	2.50,5	48,3	44,4	44,4	44,4	43,4					218.2.45,53	G.
May 20	Polaris R. M. ....	34.0	4.14,6	16,3	9,4	11,6	8,1	10,8	13,534	-1.11,28			34.2.59,95	G.
	Polaris. ....	141.30	4.51,0	49,3	46,7	45,0	44,8	44,0					141.34.46,15	G.
May 26	Σ 1690. ....	234.0	0.46,5	49,2	39,3	43,0	43,9	41,4					234.0.43,78	G.
	Polaris SP. R. M. .	37.10	0.34,3	38,4	26,9	32,8	32,0	32,1	18,568	-2.56,25			37.7.36,43	G.
	Polaris SP. ....	138.30	0.13,6	17,4	7,1	9,9	12,0	7,2					138.30.11,17	G.
	ε Bootis R. M. ...	333.20	0.16,9	17,9	11,0	16,0	14,9	12,8	7,568	+53,14			333.21.8,02	G.
	ε Bootis. ....	202.15	1.41,1	41,0	34,0	36,0	37,1	35,7					202.16.37,25	G.
	21 Ophiuchi. ....	228.30	1.16,6	19,4	11,2	14,0	14,0	12,9					228.31.14,50	G.
	(e) * R. 16 <sup>h</sup> . 45 <sup>m</sup> . 18 <sup>s</sup> ..	226.40	3.31,0	33,4	25,1	27,8	28,0	26,1					226.43.28,05	G.
	30 Ophiuchi. ....	233.55	4.17,8	18,2	10,6	11,9	14,1	12,4					233.59.13,55	G.
	ε Ursæ Min. R. M. .	27.50	4.25,4	26,6	19,5	21,3	23,0	21,4	15,248	-1.47,03			27.52.35,19	G.
	ε Ursæ Minoris ...	147.45	0.17,7	18,1	11,9	13,0	14,0	11,7					147.45.14,37	G.
	α Herculis R. M. .	320.10	1.36,9	38,3	29,8	32,4	33,0	32,0	11,286	-24,40			320.11.9,12	G.
	α Herculis. ....	215.25	1.39,4	41,8	33,5	35,6	37,9	34,6					215.26.36,90	G.
May 28	Σ 1751. ....	219.50	2.45,2	47,8	37,9	41,4	43,9	39,9					219.52.42,28	G.
	Σ 1760. sp. ....	202.55	0.53,8	56,9	48,0	51,7	51,1	48,0					202.55.51,47	G.
	η Ursæ Maj. R. M. ....	355.45	0.32,8	35,4	27,8	31,0	30,1	27,9	18,811	-3.1,32			355.42.29,45	G.
	η Ursæ Majoris....	179.55	0.18,4	17,8	12,6	13,6	13,5	11,3					179.55.14,50	G.
	η Bootis R. M. ...	324.50	0.20,0	20,7	13,0	15,0	15,0	12,9	15,850	-1.59,58			324.48.16,49	G.
	η Bootis. ....	210.45	4.32,2	32,6	26,0	27,7	32,7	26,9					210.49.29,03	G.
	κ Bootis.....	177.25	4.45,9	45,2	41,5	41,7	42,3	40,2					177.29.42,12	G.
	Σ 1825. ....	209.5	4.24,6	25,5	19,3	20,3	23,6	19,1					209.9.21,43	G.

Runs taken May 21, 1<sup>h</sup>. (Temp. 61°), and May 29, 1<sup>h</sup>. (Temp. 68°).

(a) Not seen double.

(b) Three stars nearly in a line: interval from the first to the second about 30', from the second to the third about 18'. The middle one is the brightest; none seen double.

(c) Indistinct.

(d) See May 15. The first star is the faintest.

(e) About 7,8 magnitude. No star near.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
-	" " "	Inch.	"	"	" "	" "	"	" "	" "	"	"
53,05	19. 59. 36,03	29,992	59,0	58,2	20,92				57. 47. 5,25	- 9,99	Σ 1727.
	34. 3. 36,30				38,87				71. 51. 43,45	- 13,60	* Alt. 13°. 8". 42'.
	59. 59. 30,00	29,974	58,0	56,4	1. 39,53				97. 48. 17,81	- 19,48	* Alt. 13°. 25". 58'.
	31. 26. 46,28				55,26				69. 14. 29,82	- 13,72	† Bootis.
	2. 6. 25,76				2,12				39. 53. 36,16		η Ursæ Maj. R.
	2. 6. 25,31								39. 53. 35,71	- 8,39	η Ursæ Majoris.
	36. 1. 55,30	29,962	57,3	55,3	1. 25,56				93. 50. 29,14	- 18,67	Σ 1790. sp.
	- 1. 39. 49,74				1,68				36. 7. 16,86	- 8,36	Piazzi XII. 277.
	- 12. 55. 4,25								24. 51. 50,77		α Draconis R.
	- 12. 55. 2,35				13,26				24. 51. 52,67	- 7,07	α Draconis.
54,22	32. 11. 42,84				36,37				69. 59. 27,49		Arcturus R.
	32. 11. 42,40								69. 59. 27,05	- 15,56	Arcturus.
53,05	- 5. 11. 39,48	29,956	56,0	54,6	5,26				32. 35. 23,54	- 8,89	Σ 1830.
	- 5. 12. 52,32				5,28				32. 34. 10,68	- 8,89	* Alt. 14°. 10". 52'.
	- 5. 13. 59,78				5,30				32. 33. 3,20	- 8,89	Σ 1831.
	40. 13. 52,00				48,91				78. 1. 49,19	- 16,21	Σ 1838. np.
	15. 55. 41,90				16,51				53. 43. 6,69	- 12,85	Σ 1858.
	- 9. 43. 17,52				9,91				28. 3. 40,85	- 9,94	Σ 1878.
	- 9. 33. 9,72				9,74				28. 13. 48,82	- 10,09	Σ 1882.
	- 18. 26. 47,59	29,486	56,0	51,4	19,12				19. 20. 1,57	+ 0,98	α Draconis R.
	- 18. 26. 46,07								19. 20. 3,09		α Draconis.
	- 72. 4. 24,80				2. 55,23				- 34. 20. 11,75	- 2,57	α Cassiop. SP. R.
53,54	- 72. 4. 23,67				36,04				- 34. 20. 10,62		α Cassiopeiæ SP.
	32. 10. 9,50				1. 25,40				69. 57. 53,62	- 11,91	Piazzi XII. 202.
54,45	56. 11. 47,66								94. 0. 21,34	- 18,41	Σ 1690.
	- 30. 18. 41,49		50,3		47,01				- 1. 32. 20,22	- 0,76	Polaris SP. R.
53,26	- 39. 18. 39,14				2,11				- 1. 32. 17,87		Polaris SP.
	2. 6. 24,61								39. 53. 35,00	- 7,67	η Ursæ Maj. R.
	2. 6. 24,58				33,51				39. 53. 34,97		η Ursæ Majoris.
	30. 15. 19,06				0,32				68. 3. 0,85	- 13,79	Σ 1804.
	- 0. 19. 8,57				5,22				37. 27. 59,39	- 8,65	α Bootis.
	- 5. 11. 41,77				5,23				32. 35. 21,29	- 8,07	Σ 1830.
	- 5. 12. 53,17				5,26				32. 34. 9,86	- 8,07	* Alt. 14°. 10". 52'.
	- 5. 13. 59,63				48,57				32. 33. 3,37	- 8,07	Σ 1831.
	40. 13. 52,26				41,93				78. 1. 49,11	- 15,82	Σ 1838. np.
	- 36. 14. 6,68	29,630	53,8	54,2					1. 32. 19,65	- 1,16	Polaris R.
53,05	- 36. 14. 7,12								1. 32. 19,21		Polaris.
53,80	56. 11. 50,51	30,016	65,4	65,5	1. 24,49				94. 0. 23,28	- 18,06	Σ 1690.
	- 39. 18. 45,16				46,41				- 1. 32. 21,29	- 2,06	Polaris SP. R.
52,64	- 39. 18. 42,10	30,008	65,8	62,0	25,98				- 1. 32. 20,23		Polaris SP.
	24. 27. 43,25				1. 9,99				62. 15. 19,51	- 12,15	α Bootis R.
54,78	24. 27. 43,98	29,968	61,7	59,0	1. 5,69				62. 15. 18,24		α Bootis.
	50. 42. 21,23				1. 25,38				88. 30. 39,50	- 13,14	21 Ophiuchi.
	48. 54. 34,78								86. 42. 48,75	- 13,06	* Alt. 16°. 45". 18'.
	56. 10. 20,28								93. 58. 53,94	- 12,54	30 Ophiuchi.
	- 30. 3. 41,92				53,20				7. 42. 53,16	- 12,17	ε Ursæ Min. R.
	- 30. 3. 38,90				44,20				7. 42. 56,18		ε Ursæ Minoris.
	57. 37. 44,15								75. 25. 36,63	- 12,68	α Herculis R.
	57. 37. 45,63								75. 25. 36,11		α Herculis.
	42. 3. 49,01	29,990	66,3	64,0	51,25				79. 51. 48,54	- 19,70	Σ 1751.
	25. 6. 58,20				26,64				62. 54. 33,12	- 23,53	Σ 1760. sp.
51,98	2. 6. 23,82				2,09				39. 53. 34,19	- 5,41	η Ursæ Maj. R.
	2. 6. 21,23				36,91				39. 53. 31,60		η Ursæ Majoris.
52,76	33. 0. 36,78								70. 48. 21,97	- 12,58	η Bootis R.
	33. 0. 35,76				0,32				70. 48. 20,95		η Bootis.
	- 0. 19. 11,15	30,000	65,0	63,0	34,69				37. 27. 56,81	- 6,16	α Bootis.
	31. 29. 28,16								69. 8. 11,15	- 12,52	Σ 1825.

Coincidence of Micrometer Wire with fixed Wire = 10', 113, 10', 116 and 10', 126 at 2nd, middle, and 5th wires.

One Micrometer Revolution = 20", 854.

Correction for Runa from May 15 -- 4", 1. From May 26 -- 4", 4.

Adopted Zenith Point from May 15 = 177°. 48'. 53", 27.

Assumed Co-latitude = 57°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
		° ' "	" "	" "	" "	" "	" "	" "	"	" "		"	° ' "	
May 28	4 Scorp. ....	255.40	5.10,2	11,3	5,5	5,9	7,0	5,5	16,331	-2.9,60			255.45.6,82	G.
	ζ Ursæ Min. R. M.	23.50	4.28,3	31,0	24,5	25,5	25,3	24,9					23.52.16,33	G.
	ζ Ursæ Minoris...	151.45	0.37,3	36,7	31,4	31,8	31,7	31,9					151.45.33,38	G.
	(a) A.S.C. 1840.....	255.50	1.18,5	19,2	12,9	13,6	14,3	12,4					255.51.14,97	G.
	σ Coronæ Borealis.	195.45	0.46,9	46,4	41,4	42,8	39,5	40,0					195.45.42,73	G.
June 1	(b) Σ 1785. np. ....	202.10	4.54,1	51,1	48,3	46,8	46,8	46,8	11,210	-22,81			202.14.48,28	G.
	Σ 1825.....	209.5	4.24,9	21,4	19,4	20,2	20,7	17,8					209.9.20,10	G.
	λ Virginis.....	242.35	3.15,9	14,0	8,5	9,2	9,6	8,7					242.38.10,52	G.
	Σ 1838. np. ....	218.0	2.47,3	45,6	40,2	41,3	40,4	40,2					218.2.42,10	G.
	Σ 1878.....	168.5	0.34,3	31,0	28,0	29,9	28,2	27,9					168.5.29,82	G.
	Σ 1882.....	168.15	0.41,8	39,4	35,5	36,8	35,0	35,0	12,240	-44,30			168.15.37,15	G.
	Σ 1886.....	219.35	3.17,9	17,5	12,6	13,1	11,9	10,8					219.38.13,50	G.
	39 Bootis. sp. ....	180.35	4.16,5	12,2	10,8	9,6	8,0	9,2					180.39.10,43	G.
	β Ursæ Min. R. M.	20.20	4.20,4	20,4	15,3	16,2	14,8	14,7					20.23.53,52	G.
	β Ursæ Minoris...	155.10	3.59,8	57,9	55,8	54,1	52,8	53,8					155.13.55,12	G.
	α Cor. Bor. R. M. ...	332.50	2.18,8	17,9	14,1	15,4	13,5	12,8	16,017	-2.3,06			332.51.30,78	G.
	α Coronæ Borealis.	202.45	1.19,8	16,8	13,7	14,9	10,9	11,9					202.46.14,48	G.
	χ Libræ.....	253.15	1.11,0	9,2	4,8	5,0	3,1	3,3					253.16.5,90	G.
	η Draconis R. M. ...	7.30	0.22,0	22,2	16,8	17,8	14,9	15,2					7.28.15,04	G.
	η Draconis.....	168.5	4.37,2	34,1	31,9	31,9	31,3	32,0					168.9.32,40	G.
June 4	(c) * R. 15 <sup>b</sup> . 6 <sup>m</sup> . 56 <sup>s</sup> ..	237.10	4.34,0	32,5	28,1	29,4	29,6	29,2	15,783	-1.58,20			237.14.29,80	G.
	Σ 1931. np. ....	219.0	0.28,7	28,8	21,8	24,8	23,5	23,1					219.0.25,05	G.
	η Coronæ Borealis.	199.5	4.41,0	39,4	34,3	35,0	34,4	33,8					199.9.35,65	G.
	A.S.C. 1840.....	255.50	1.13,1	15,0	9,0	10,4	7,3	7,4					255.51.10,20	G.
	σ Coronæ Borealis.	195.45	0.46,0	45,8	40,6	42,3	38,2	39,2					195.45.41,92	G.
June 10	84 Virginis.....	225.40	0.17,5	19,1	11,3	13,8	13,5	13,7	11,750	-34,09			225.40.14,80	G.
	(d) Σ 1785. np. ....	202.10	4.50,8	52,5	46,0	47,1	47,1	45,4					202.14.48,15	G.
	η Bootis R. M. ....	324.50	0.19,2	22,7	16,7	17,3	16,5	15,8					324.48.19,82	G.
	η Bootis.....	210.45	4.30,6	32,3	26,3	27,2	29,8	27,2					210.49.23,68	G.
	α Draconis R. M. ...	10.40	4.38,3	42,0	35,3	37,3	37,9	35,7					10.44.3,43	G.
	α Draconis. ....	164.50	3.48,0	48,4	45,8	44,1	45,3	44,9	10,310	-3,86	+2 +3	-0,22 +0,49	164.53.45,90	G.
	(e) Arcturus R. M. ...	325.35	2.21,1	23,7	17,3	18,2	18,2	16,5					325.37.14,97	G.
	Arcturus.....	210.0	0.34,9	36,9	30,0	31,2	33,2	31,0					210.0.33,32	G.
	Σ 1858. ....	193.40	4.33,8	33,0	30,0	29,2	29,2	29,1					193.44.30,50	G.
	(f) Σ 1873. np. ....	221.35	3.28,5	26,8	22,7	24,3	25,1	23,4					221.38.25,30	G.
	Σ 1886 M. ....	219.35	4.26,0	26,0	20,8	22,4	21,9	20,8	6,710	-1.8,40 +1.10,80	-2	+0,11	219.38.14,48	G.
	ξ Bootis M. ....	210.10	4.23,5	23,2	17,4	18,9	20,9	17,3					210.15.30,78	G.
	39 Bootis. sp. ....	180.35	4.14,3	14,0	10,0	9,3	8,9	9,1					180.39.10,73	G.
	Σ 1895. sp. ....	189.10	3.33,4	32,1	28,4	28,0	28,8	28,4					189.13.29,67	G.
	Σ 1904. sf. ....	223.50	3.51,8	51,8	46,2	46,0	48,0	45,9					223.53.48,25	G.
	44 Bootis. nf. ....	181.45	0.16,7	14,9	12,3	13,2	10,7	11,5	6,387	+1.17,75	-1	+0,17	181.45.13,37	G.
	Piazzi XIV. 279. ...	220.10	0.42,6	42,8	36,6	38,5	37,8	36,8					220.10.39,15	G.
	α Ophiuchi R. M. ...	318.15	1.19,3	18,8	13,8	14,9	12,8	13,4					318.17.33,18	G.
	α Ophiuchi. ....	217.20	0.18,6	18,9	12,8	15,4	12,4	13,0					217.20.15,17	G.
	A.S.C. 2042 M. ....	261.35	0.20,3	21,6	17,2	18,2	16,1	15,0					261.32.9,65	G.
	A.S.C. 2044.....	260.25	1.55,6	55,9	52,0	53,1	51,7	50,5	19,149	-3.8,40			260.26.53,03	G.
June 12	(d) π Bootis.....	212.50	4.64,1	64,4	59,5	60,2	60,4	57,9					212.55.1,08	G.
	Σ 1870. ....	221.15	0.37,8	41,0	34,8	37,1	37,0	34,9					221.15.37,07	G.
	Σ 1873. ....	221.35	3.24,4	25,9	20,2	21,8	21,8	21,0					221.38.22,35	G.
	Σ 1886 M. ....	219.35	4.30,8	31,9	27,3	27,5	30,1	27,1					219.38.13,23	G.
	ξ Bootis M. ....	210.10	4.34,3	35,1	30,0	30,8	32,9	30,0					210.15.29,25	G.
	39 Bootis. sp. ....	180.35	4.13,1	13,0	10,8	8,9	9,8	8,3	7,368	+57,30			180.39.10,45	G.
	Σ 1895. sp. M. ....	189.5	4.14,0	12,9	9,5	8,3	9,9	7,7					189.13.29,36	G.
	Σ 1896. ....	185.20	0.40,8	41,1	36,9	37,2	36,5	36,0					185.20.38,05	G.
	Σ 1904. sf. ....	223.50	3.48,9	48,2	44,1	43,3	45,9	43,0					223.53.45,38	G.
	44 Bootis. nf. ....	181.45	0.16,1	14,9	12,4	11,1	10,5	10,7					181.45.12,60	G.
	Piaz. XIV. 279. nf.	220.10	0.40,5	42,8	36,2	36,8	37,9	35,1					220.10.38,18	G.

Runs taken June 12, 11<sup>h</sup>. (Temp. 45°.)Coincidence at middle wire taken June 21, 11<sup>h</sup>.

(a) Faint on account of clouds.

(b) A close double.

(c) Very faint.

(d) No correction for Runs.

(e) Not good: the mercury waving.

(f) The two stars have nearly the same N.P.D.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite lamb.	Semi- diameter.	Geoc. N.P.D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	
54,86	77. 56. 13,55	30,000	62,4	60,1	4. 21,47				115. 47. 43,30	- 16,69	4 Scorpii.
	- 26. 3. 23,06								11. 43. 17,21	- 8,47	ζ Ursæ Min. R.
	- 26. 3. 19,89				28,01				11. 43. 20,38		ζ Ursæ Minoris.
	78. 2. 21,70				4. 23,67				115. 53. 53,65	- 15,81	A.S.C. 1840.
	17. 56. 49,46				18,56				55. 44. 16,30	- 12,35	σ Coronæ Bor.
54,82	24. 25. 55,01	30,122	63,2	60,7	26,11				62. 13. 29,40	- 9,65	Σ 1785. np.
	31. 20. 26,83				34,99				69. 8. 10,10	- 11,87	Σ 1825.
	64. 40. 17,25				2. 1,59				102. 38. 27,12	- 19,49	λ Virginis.
	40. 13. 48,83				48,58				78. 1. 45,69	- 13,97	Σ 1838. np.
	- 9. 43. 23,45				39,6				28. 3. 34,96	- 5,23	Σ 1878.
	- 9. 33. 16,12				9,87				28. 13. 42,46	- 5,35	Σ 1882.
	41. 49. 20,23				51,49				79. 37. 20,00	- 14,29	Σ 1886.
	2. 50. 17,16				2,86				40. 37. 28,30	- 7,29	39 Bootis. sp.
	- 22. 35. 0,25								15. 11. 44,08	- 4,52	β Ursæ Min. R.
	- 22. 34. 58,15				23,95				15. 11. 46,18		β Ursæ Minoris.
52,63	24. 57. 22,49			57,8	26,89				62. 44. 57,66	- 11,66	α Coronæ Bor. R.
	24. 57. 21,21								62. 44. 56,38		α Coronæ Bor.
	75. 27. 12,63				3. 38,93				113. 17. 59,84	- 17,66	χ Libræ.
53,72	- 9. 39. 21,77			56,0	9,87				28. 7. 36,64	- 9,70	η Draconis R.
	- 9. 39. 20,87								28. 7. 37,54		η Draconis.
	59. 25. 36,55	30,253	60,3	56,4	1. 38,22				97. 14. 23,03	- 16,68	* Al. 15 <sup>b</sup> . 6 <sup>a</sup> . 56 <sup>b</sup> .
	41. 11. 31,78				50,91				78. 59. 30,97	- 13,54	Σ 1931. np.
	21. 20. 42,38				22,75				59. 8. 13,41	- 10,33	η Coronæ Bor.
	78. 2. 16,93				4. 28,12				115. 53. 53,33	- 16,10	A.S.C. 1840.
	17. 56. 48,65				18,87				55. 44. 15,80	- 10,51	σ Coronæ Bor.
54,26	47. 51. 21,30	29,654	54,5	52,3	1. 3,50				85. 39. 33,08	- 14,93	84 Virginis.
	24. 25. 54,65				26,14				62. 13. 29,07	- 8,29	Σ 1785. np.
	33. 0. 33,68								70. 48. 19,33	- 10,73	η Bootis R.
	33. 0. 35,18				37,37				70. 48. 20,83		η Bootis.
	- 12. 55. 9,93				13,20				24. 51. 45,15	- 1,02	α Draconis R.
54,67	- 12. 55. 7,60								24. 51. 47,48		α Draconis.
	32. 11. 38,53				36,22				60. 59. 23,03	- 11,60	Arcturus R.
	32. 11. 39,82								60. 59. 24,32		Arcturus.
54,13	15. 55. 57,00	29,646	53,4	50,7	16,47				53. 43. 1,75	- 7,17	Σ 1858.
	43. 49. 31,80				55,34				81. 37. 35,42	- 13,64	Σ 1873. np.
	41. 49. 20,58				51,60				79. 37. 20,46	- 13,12	Σ 1886.
	32. 26. 37,28				36,68				70. 14. 22,24	- 10,99	ξ Bootis.
	2. 50. 17,23				2,86				40. 37. 28,37	- 5,14	39 Bootis. sp.
	11. 24. 36,17				11,65				49. 11. 56,10	- 6,84	Σ 1895. sp.
	46. 4. 54,73				59,87				83. 53. 2,90	- 13,89	Σ 1904. sf.
	3. 56. 19,87				3,97				41. 43. 32,12	- 5,74	44 Bootis. sf.
	42. 21. 45,65				52,59				80. 9. 46,52	- 13,08	Piazzi XIV. 279.
	39. 31. 20,32				47,87				77. 19. 16,47	- 9,03	α Ophiuchi R.
54,18	39. 31. 21,67	29,620	50,0	47,3					77. 19. 17,82		α Ophiuchi.
	83. 43. 16,15				8. 6,80				121. 38. 31,23	- 7,43	A.S.C. 2042
	82. 57. 59,53				7. 2,46				120. 32. 10,27	- 7,44	A.S.C. 2044.
	35. 6. 7,58	29,900	50,5	47,0	41,21				72. 53. 57,07	- 11,29	α Bootis.
	43. 26. 43,57				55,50				81. 14. 47,35	- 13,53	Σ 1870.
	43. 49. 28,83				56,24				81. 37. 33,37	- 13,42	Σ 1873.
	41. 49. 19,73				52,44				79. 37. 20,45	- 12,87	Σ 1886.
	32. 26. 35,75				37,27				70. 14. 21,30	- 10,69	ξ Bootis.
	2. 50. 16,95				2,91				40. 37. 28,14	- 4,70	39 Bootis. sp.
	11. 24. 35,86				11,86				49. 11. 56,00	- 6,40	Σ 1895. sp.
	7. 31. 44,55				7,77				45. 19. 0,60	- 5,72	Σ 1896.
	46. 4. 51,88				1. 0,94				83. 53. 1,10	- 13,69	Σ 1904. sf.
	3. 56. 19,10				4,05				41. 43. 31,43	- 5,27	44 Bootis. sf.
	42. 21. 44,68				53,53				80. 9. 46,49	- 12,81	Piaz. xiv. 279. sf.

Coincidence of Micrometer Wire with fixed Wire = 10",116 at the middle Wire. From June 10 = 10",105, 10",115 and 10",125 at 1st, middle, and 5th wires.

One Micrometer Revolution = 20",854.

Correction for Run = - 4",4. From June 10 = - 1",5.

Adopted Zenith Point = 177°. 48' 53",27. From June 10 = 177°. 48' 53",50.

Assumed Co-latitude = 37°. 47' 8",28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			"	"	"	"	"	"						
June 12	* $\mathcal{R}$ . 15 <sup>h</sup> . 6 <sup>m</sup> . 56 <sup>s</sup> .	237.10	4.35,8	35,3	31,7	30,1	33,7	31,9					237.14.32,85	G.
June 17	(a) Polaris SP. R. M. . . . .	37.10	0.38,8	40,8	31,1	36,4	33,7	36,5	18,639	-2.57,76			37.7.38,36	G.
	(a) Polaris SP. . . . .	138.30	0.13,1	12,3	7,4	7,3	7,8	5,3					138.30.8,83	G.
	Spica R. M. . . . .	295.15	0.14,7	17,4	8,0	12,2	10,2	8,3	2,710	+2.34,42			295.17.46,19	G.
	(b) Spica . . . . .	240.15	4.61,0	63,0	55,7	59,1	60,6	55,6					240.19.59,17	G.
	(b) $\eta$ Bootis R. M. . . . .	324.45	4.58,7	60,9	53,7	58,4	55,5	54,8	14,750	-1.36,66			324.48.20,34	G.
	$\eta$ Bootis . . . . .	210.45	4.29,3	30,4	24,0	25,0	26,9	22,9			+2	+0,21	210.49.25,89	G.
	(c) $\alpha$ Persei R. M. . . . .	354.50	3.29,0	28,8	23,7	24,5	25,9	24,3	10,060	+1,14			354.53.26,61	G.
	$\alpha$ Persei . . . . .	180.40	4.20,2	20,9	15,6	16,2	16,4	13,8			+1	+0,17	180.44.16,64	G.
	Capella R. M. . . . .	351.25	1.24,9	27,1	18,2	24,0	22,0	20,6	11,392	-26,63			351.25.55,94	G.
	Capella . . . . .	184.10	1.54,8	54,2	51,1	51,0	50,6	48,2					184.11.51,35	G.
June 21	$\xi$ Bootis . . . . .	210.15	0.31,2	33,9	25,6	27,9	30,4	26,0					210.15.29,08	G.
	$\Sigma$ 1895. sp. M. . . . .	189.10	3.24,5	25,0	19,8	19,6	21,0	19,4	9,860	+5,31			189.13.26,31	G.
	(d) $\Sigma$ 1896. . . . .	185.20	0.38,0	38,5	35,2	35,1	34,0	34,0					185.20.35,37	G.
	$\Sigma$ 1904. sf. . . . .	223.50	3.49,0	50,1	43,9	44,2	45,5	43,1					223.53.45,35	G.
	44 Bootis. nf. . . . .	181.45	0.12,4	12,1	9,0	9,0	8,2	7,4			-2	+0,67	181.45.10,32	G.
	Piaz. XIV. 279. nf. . . . .	220.10	0.40,6	41,6	34,7	36,5	37,2	34,3					220.10.37,38	G.
	$\Sigma$ 1931. np. M. . . . .	219.0	1.21,0	20,9	15,2	15,8	17,0	15,1	12,712	-54,17			219.0.23,11	G.
	$\Sigma$ 1934. nf. . . . .	185.35	3.52,8	51,9	48,5	47,7	49,2	47,2					185.38.48,92	G.
	$\eta$ Coronæ Borealis. . . . .	199.5	4.36,3	35,5	30,6	30,6	31,3	30,7					199.9.31,75	G.
	$\Sigma$ 1943. . . . .	224.0	5.20,6	19,7	14,9	14,9	17,3	14,1					224.5.16,03	G.
	A.S.C. 1752 . . . . .	246.40	1.46,0	46,9	40,2	42,0	41,0	40,8					246.41.42,53	G.
	(e) $\Sigma$ 1950. . . . .	203.55	2.59,3	58,2	54,1	54,1	55,0	53,1			+2	+0,29	203.57.55,44	G.
	(e) $\Sigma$ 1953. . . . .	223.55	2.60,7	60,0	56,1	55,9	57,7	54,2			+2	+0,06	223.57.57,01	G.
	$\epsilon$ Ursæ Min. R. M. . . . .	27.50	3.38,3	40,6	33,9	36,3	36,9	35,4	12,700	-53,91			27.52.42,39	G.
	$\epsilon$ Ursæ Minoris. . . . .	147.45	0.9,3	9,0	4,7	5,7	4,2	3,8			+1	+1,11	147.45.7,21	G.
	$\alpha$ Herculis R. M. . . . .	320.10	1.29,7	27,1	20,4	22,3	20,8	20,3	10,516	-8,29			320.11.14,87	G.
	$\alpha$ Herculis. . . . .	215.25	1.36,6	35,0	30,7	31,4	30,7	29,9			+2	+0,16	215.26.32,29	G.
June 22	$\iota$ Ophiuchi. . . . .	228.40	1.43,1	45,3	38,2	40,0	40,1	38,2					228.41.40,55	G.
	21 Ophiuchi. . . . .	228.30	1.12,8	15,0	7,7	9,2	9,7	7,3					228.31.10,08	G.
	30 Ophiuchi. . . . .	233.55	4.13,8	13,1	7,8	8,2	10,2	6,9					233.59.9,30	G.
	$\epsilon$ Ursæ Min. R. M. . . . .	27.50	3.28,1	30,3	22,8	26,6	26,1	25,1	12,218	-43,86			27.52.42,07	G.
	$\epsilon$ Ursæ Minoris. . . . .	147.45	0.8,3	8,3	3,7	4,7	3,2	2,1					147.45.5,03	G.
	$\alpha$ Herculis R. M. . . . .	320.10	1.34,8	37,2	29,1	32,8	30,3	30,4	10,922	-16,83			320.11.15,35	G.
	$\alpha$ Herculis. . . . .	215.25	1.34,8	36,8	29,8	31,2	31,4	30,2					215.26.52,12	G.
	$\alpha$ Lyræ R. M. . . . .	344.15	0.30,0	31,0	25,2	29,2	25,9	25,8	12,709	-54,10			344.14.33,67	G.
	$\alpha$ Lyræ. . . . .	191.20	3.18,0	16,9	12,9	13,3	10,8	10,8					191.23.13,25	G.
June 23	$\Sigma$ 1931. np. . . . .	219.0	0.25,0	29,1	19,7	23,4	23,8	21,0					219.0.23,60	G.
	$\eta$ Coronæ Borealis. . . . .	199.5	4.36,4	37,1	31,0	32,0	33,1	30,7					199.9.32,63	G.
	$\alpha$ Coronæ Bor. R. M. . . . .	332.50	1.29,1	32,0	24,8	27,8	28,9	24,9	9,732	+7,99			332.51.35,66	G.
	$\alpha$ Coronæ Borealis. . . . .	202.45	1.14,0	14,9	8,7	9,9	10,1	5,9					202.46.10,38	G.
	$\chi$ Libræ. . . . .	253.15	1.12,2	15,3	8,0	10,2	9,9	6,3					253.16.10,12	G.
	(f) $\Sigma$ 1985. . . . .	231.40	2.12,5	13,4	6,6	9,2	10,7	7,0					231.42.9,53	G.
	(g) $\Sigma$ 1988. p. . . . .	217.0	4.34,0	35,4	28,8	28,9	31,8	28,7					217.4.30,52	G.
June 25	Arcturus R. M. . . . .	325.35	1.22,8	25,0	17,0	21,0	18,8	19,2	7,510	+54,41	+1	-0,05	325.37.14,78	G.
	Arcturus . . . . .	210.0	0.35,1	37,1	29,4	31,5	31,7	27,4			+2	+0,22	210.0.32,17	G.
	(b) $\pi$ Bootis. np. . . . .	212.50	4.64,8	68,8	60,2	62,1	63,6	58,2					212.55.2,95	G.
	$\Sigma$ 1950. . . . .	203.55	2.58,6	59,6	54,3	55,9	55,0	52,7					203.57.55,53	G.
	$\alpha$ Coronæ Bor. R. M. . . . .	332.50	1.26,9	30,4	23,8	26,3	24,8	22,2	9,708	+8,49			332.51.33,99	G.
	$\alpha$ Coronæ Borealis. . . . .	202.45	1.14,9	16,3	10,1	11,6	10,0	7,5					202.46.11,53	G.
	$\chi$ Libræ. . . . .	253.15	1.17,4	19,1	12,1	14,0	12,8	10,9					253.16.14,18	G.
	$\Sigma$ 1985. . . . .	231.40	2.13,3	16,1	8,1	10,3	10,0	7,1					231.42.10,45	G.
	(f) $\Sigma$ 1988. . . . .	217.0	4.34,1	35,2	28,7	29,0	31,3	28,8					217.4.30,43	G.
	49 Serpentis. np. . . . .	216.0	3.46,5	47,9	42,7	43,8	44,7	41,1					216.3.43,83	G.
	$\sigma$ Coronæ Borealis. . . . .	195.45	0.39,6	41,2	35,0	37,5	34,4	33,0					195.45.36,68	G.
	(h) $\eta$ Draconis R. M. . . . .	7.30	0.36,2	40,0	31,2	35,8	32,8	31,2	16,512	-2.13,41			7.28.21,02	G.
	$\eta$ Draconis. . . . .	168.5	4.28,9	29,2	24,0	24,3	25,1	24,3					168.9.25,23	G.

Runs taken June 21, 11<sup>h</sup>. (Temp. 61°.)

(a) Faint from cloudiness.

(b) No correction for Runs.

(c) Too near the fixed wire.

(d) Extremely faint.

(e) Very faint.

(f) Very cloudy.

(g) The two stars have nearly the same N.P.D. The preceding star was bisected.

(h) Extremely cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
	59. 25. 39,33	29,900	50,5	46,2	1. 39,13				97. 14. 26,76	- 16,22	* R. 15°. 6". 56".
53,60	- 39. 18. 44,86	29,922	58,7	60,4	46,74				- 1. 32. 23,32	- 4,06	Polaris SP. R.
	- 39. 18. 44,67								- 1. 32. 23,13		Polaris SP.
52,68	62. 31. 7,31								100. 20. 4,93		Spica R.
	62. 31. 5,67								100. 20. 3,29	- 19,09	Spica.
53,12	33. 0. 33,16		59,0	59,5	37,16				70. 48. 18,50		η Bootis R.
	33. 0. 32,39								70. 48. 17,83	- 9,89	η Bootis.
51,63	2. 55. 26,89	29,750		61,5	2,89				40. 42. 38,06		α Persei R.
	2. 55. 23,14								40. 42. 34,31	+ 3,72	α Persei.
53,65	6. 22. 57,56	29,734	65,0	66,6	6,27				44. 10. 12,11		Capella R.
	6. 22. 57,85								44. 10. 12,40	+ 5,83	Capella
	32. 26. 35,58	29,934	59,7	58,3	36,46				70. 14. 20,12	- 9,32	ξ Bootis.
	11. 24. 32,81				11,58				49. 11. 52,67	- 4,59	Σ 1895. sp.
	7. 31. 41,87				7,58				45. 18. 57,73	- 3,87	Σ 1896.
	46. 4. 51,85				59,52				83. 52. 59,65	- 12,67	Σ 1904. sf.
	3. 56. 16,82				3,05				41. 43. 29,05	- 3,32	44 Bootis. nf.
	42. 21. 43,88				52,29				80. 9. 44,45	- 11,68	Piaz. xiv. 279. nf.
	41. 11. 29,61				50,18				78. 59. 28,07	- 11,19	Σ 1931. np.
	7. 49. 55,42				7,89				45. 37. 11,59	- 4,23	Σ 1934. nf.
	21. 20. 38,25				22,43				59. 8. 8,96	- 6,79	η Coronæ Bor.
	46. 16. 22,53	29,948	58,6	57,3	1. 0,07				84. 4. 30,88	- 12,18	Σ 1943.
	68. 52. 49,03				2. 27,75				106. 42. 25,06	- 17,30	A.S.C. 1752.
	26. 9. 1,94				28,24				63. 56. 38,46	- 7,75	Σ 1950.
	46. 9. 3,51				59,81				83. 57. 11,60	- 11,95	Σ 1953.
54,80	- 30. 3. 48,89	29,954	53,7	54,3	33,50				7. 42. 45,89	- 3,88	ε Ursæ Min. R.
	- 30. 3. 46,29								7. 42. 48,49		ε Ursæ Minoris.
53,55	37. 37. 38,63				44,60				75. 25. 31,51		α Herculis R.
	37. 37. 38,79								75. 25. 31,67	- 7,49	α Herculis.
	50. 52. 47,05	29,970	57,6	55,4	1. 10,94				88. 41. 6,27	- 10,01	ι Ophiuchi.
	50. 42. 16,58				1. 10,50				88. 30. 35,36	- 9,70	21 Ophiuchi.
	56. 10. 15,80				1. 26,01				93. 58. 50,09	- 9,83	30 Ophiuchi.
53,55	- 30. 3. 48,57				33,44				7. 42. 46,27		ε Ursæ Min. R.
	- 30. 3. 48,47								7. 42. 46,37	- 3,59	ε Ursæ Minoris.
53,74	37. 37. 38,15				44,52				75. 25. 30,95		α Herculis R.
	37. 37. 38,62								75. 25. 31,42	- 7,30	α Herculis.
53,46	13. 34. 19,83	29,960	55,8	53,4	14,01				51. 21. 42,12		α Lyre R.
	13. 34. 19,75								51. 21. 42,04	- 4,82	α Lyric.
	41. 11. 30,10	29,806	59,7	58,3	49,97				78. 59. 28,35	- 10,95	Σ 1931. np.
	21. 20. 39,13				22,33				59. 8. 9,74	- 3,85	η Coronæ Bor.
53,02	24. 57. 17,84				26,59				62. 44. 52,71		α Coronæ Bor. R.
	24. 57. 16,88								62. 44. 51,75	- 7,14	α Coronæ Bor.
	75. 27. 16,62				3. 36,42				113. 18. 1,32	- 18,14	γ Libræ.
	53. 53. 16,03		57,5		1. 18,28				91. 41. 42,59	- 12,68	Σ 1985.
	39. 15. 37,02				46,75				77. 3. 32,05	- 9,67	Σ 1988. p.
53,43	32. 11. 38,72	29,514	61,2	61,4	35,39				69. 59. 22,39	- 9,75	Arcturus R.
	32. 11. 38,67								69. 59. 22,34		Arcturus
	35. 6. 9,45				39,51				72. 53. 37,24	- 9,55	α Bootis. np.
	26. 9. 2,03		60,5	59,5	27,71				63. 56. 38,02	- 7,04	Σ 1950.
52,76	24. 57. 19,51				26,26				62. 44. 54,05		α Coronæ Bor. R.
	24. 57. 18,03								62. 44. 52,57	- 6,78	α Coronæ Bor.
	75. 27. 20,68				3. 33,81				113. 18. 2,77	- 18,16	γ Libræ.
	53. 53. 16,95		59,1		1. 17,27				91. 41. 42,50	- 12,50	Σ 1985.
	39. 15. 36,93				46,14				77. 3. 31,35	- 9,38	Σ 1988.
	38. 14. 50,13				44,51				76. 2. 43,12	- 8,73	49 Serpentina. np.
	17. 56. 43,18				18,30				55. 44. 9,76	- 5,34	α Coronæ Bor.
53,13	- 9. 39. 27,32				9,61				28. 7. 31,15		η Draconis R.
	- 9. 39. 28,97								28. 7. 30,40	- 2,42	η Draconis.

Coincidence of Micrometer Wire with fixed Wire = 10",115 and 10",119 at middle and 4th wires.

One Micrometer Revolution = 20",854.

Correction for Runs = - 1",5. From June 17 = - 5",0.

Adopted Zenith Point = 177°. 48'. 55".50.

Assumed Co-latitude = 37°. 47'. 8".28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
			"	"	"	"	"	"						
June 25	ε Ursæ Min. R. M.	27.50	3.24,7	27,1	19,0	22,9	23,9	21,0	11,929	-37,82			27.52.44,71	G.
	ε Ursæ Minoris...	147.40	5.7,8	7,0	3,9	2,6	2,9	1,9					147.45.3,52	G.
	(a) α Herculis R. M.	320.5	4.52,2	54,3	47,0	48,0	48,2	47,2	5,820	+1.29,78	+2	-0,16	320.11.18,30	G.
	α Herculis.....	215.25	1.35,0	37,2	29,3	31,3	31,4	29,4			+3	+0,35	215.26.32,37	G.
June 26	A.S.C. 552. SP. R.M.	59.30	2.41,0	44,7	35,1	40,3	38,2	38,3	16,367	-2.10,37			59.30.28,78	G.
	A.S.C. 552. SP....	116.5	2.19,8	19,8	12,7	15,1	13,1	12,3					116.7.15,10	G.
	21 Ophiuchi.....	228.30	1.14,3	16,1	9,7	10,2	10,5	8,0					228.31.11,27	G.
	30 Ophiuchi.....	233.55	4.15,5	15,0	9,9	9,3	11,2	8,9					233.59.10,93	G.
	ε Ursæ Min. R. M.	27.50	3.36,2	38,2	31,2	35,1	35,7	33,9	12,500	-49,74			27.52.44,71	G.
	ε Ursæ Minoris...	147.40	5.7,0	7,2	3,4	2,8	3,0	1,4					147.45.3,28	G.
	41 Ophiuchi.....	230.15	1.18,7	19,4	12,8	14,2	13,3	12,2					230.16.14,90	G.
	A.S.C. 2044.....	260.25	1.64,4	65,9	59,5	61,2	59,3	58,8					260.27.1,15	G.
	* R. 17 <sup>b</sup> .46 <sup>m</sup> .11 <sup>s</sup> .	188.10	1.37,8	37,7	33,0	33,9	32,1	32,2					188.11.34,18	G.
	(b) * R. 17 <sup>b</sup> .46 <sup>m</sup> .12 <sup>s</sup> . N.	188.10	1.37,8	37,7	33,0	33,9	32,1	32,2	4,877	+1.49,24			188.13.23,42	G.
	Σ 1985.....	231.40	2.13,2	10,3	12,0	10,5	12,9	12,0					231.42.11,40	G.
	Σ 1988.....	217.0	4.34,1	30,8	32,0	30,0	34,4	32,2					217.4.31,42	G.
	A.S.C. 1840.....	255.50	1.23,1	21,3	22,0	21,5	24,0	22,9					255.51.22,20	G.
July 8	49 Serpentis. np...	216.0	3.49,0	45,0	46,8	44,8	48,3	46,8					216.3.46,08	G.
	ε Ophiuchi R. M.	301.15	3.21,1	18,9	21,0	18,9	19,9	20,3	7,020	+1.4,57			301.19.23,97	G.
	ε Ophiuchi.....	234.15	3.34,8	31,0	30,8	29,3	32,8	33,0					234.18.31,30	G.
	(c) Piazzi XVI. 87....	254.45	0.24,6	22,1	23,3	23,5	26,1	24,0					254.45.23,87	G.
	A.S.C. 552. SP. R.M.	59.30	1.22,0	21,0	19,8	22,3	21,7	23,1	12,302	-45,60			59.30.35,80	G.
	A.S.C. 552. SP....	116.5	2.24,2	21,3	20,4	20,9	20,0	21,9					116.7.21,02	G.
	ε Ursæ Min. R. M.	27.50	3.13,8	13,4	12,9	13,8	16,8	15,2	11,149	-21,54			27.52.52,18	G.
	ε Ursæ Minoris...	147.45	0.7,2	4,0	6,1	5,3	5,0	6,4					147.45.5,65	G.
	α Herculis R. M.	320.10	1.28,1	27,2	25,5	26,8	27,6	27,4	10,318	-4,21			320.11.22,62	G.
	α Herculis.....	215.25	1.36,1	32,4	34,8	34,0	35,9	34,8					215.26.34,37	G.
	(d) * R. 17 <sup>b</sup> .46 <sup>m</sup> .11 <sup>s</sup> . M	188.10	3.26,7	21,5	25,1	22,8	23,2	25,5	15,160	-1.45,18			188.11.38,32	G.
	* R. 17 <sup>b</sup> .46 <sup>m</sup> .12 <sup>s</sup> .	188.10	3.26,7	21,5	25,1	22,8	23,2	25,5					188.13.23,50	G.
July 9	49 Serpentis.....	216.0	3.47,9	44,7	46,2	44,2	49,3	46,4					216.3.45,75	G.
	Σ 2052.....	211.15	1.6,4	3,5	6,8	4,4	8,9	5,0					211.16.5,63	G.
	λ Ophiuchi.....	227.40	0.36,5	34,7	35,0	34,8	38,8	35,7					227.40.35,80	G.
	l Ophiuchi.....	228.40	1.45,8	42,2	43,6	41,5	47,2	43,6					228.41.43,67	G.
	Σ 2104.....	193.45	4.24,0	18,8	23,0	19,2	24,0	22,5					193.49.21,12	G.
	ε Ursæ Min. R. M.	27.50	3.15,3	14,0	14,7	14,4	16,4	16,9	11,197	-22,54			27.52.52,14	G.
	ε Ursæ Minoris...	147.45	0.6,8	2,3	6,3	3,3	8,0	4,2					147.45.5,13	G.
	α Herculis R. M.	320.10	0.17,3	16,8	16,0	14,9	17,7	15,9	6,890	+1.7,28			320.11.23,66	G.
	α Herculis.....	215.25	1.36,0	32,3	34,8	32,2	39,2	35,0					215.26.34,62	G.
July 16	l Ophiuchi.....	228.40	1.45,1	44,0	41,7	42,1	44,9	44,9					228.41.43,47	G.
	Σ 2104.....	193.45	4.21,8	20,3	20,1	18,4	21,1	22,0					193.49.19,82	G.
	ε Ursæ Min. R. M.	27.50	3.21,3	23,5	20,6	20,2	24,1	23,7	11,370	-26,14			27.52.55,48	G.
	ε Ursæ Minoris...	147.45	0.4,9	4,5	3,8	3,8	5,0	5,0					147.45.4,48	G.
	α Herculis R. M.	320.10	1.17,1	16,8	14,9	14,8	17,0	15,9	9,698	+8,72			320.11.24,59	G.
	α Herculis.....	215.25	1.33,8	34,0	32,0	32,1	34,8	34,1					215.26.33,18	G.
	Σ 2178.....	194.55	2.30,2	28,4	28,1	27,5	29,3	30,1			-2	+0,43	194.57.28,90	G.
	α Ophiuchi R. M.	318.15	1.27,8	26,9	24,8	24,4	27,4	27,0	6,369	+1.18,14			318.17.44,26	G.
	α Ophiuchi.....	217.20	0.13,7	12,8	10,8	10,7	14,7	12,8					217.20.12,55	G.
	Σ 2213.....	198.45	4.22,8	20,5	21,0	19,8	22,6	22,0					198.49.20,65	G.
	ε Ursæ Min. R. M.	32.10	1.22,9	26,0	21,3	23,6	27,2	25,2	11,128	-21,10			32.11.3,00	G.
	ε Ursæ Minoris...	143.25	1.57,2	57,4	57,1	55,8	58,4	58,0					143.26.56,95	G.
	(e) α Lyrae R. M.....	344.15	0.17,1	17,4	15,6	17,8	18,3	17,9	11,599	-30,92			344.14.46,38	G.
	α Lyrae.....	191.20	3.12,0	11,1	11,2	10,1	10,6	11,8					191.23.10,53	G.
July 17	Σ 2052.....	211.15	1.6,3	6,5	4,5	5,6	9,0	5,1					211.16.5,97	G.
	λ Ophiuchi.....	227.40	0.35,9	38,4	33,3	34,8	37,4	37,0					227.40.36,02	G.
	Σ 2087. np.....	206.0	2.59,4	60,5	57,1	57,2	62,3	59,3					206.2.58,75	G.
	Σ 2104.....	193.45	4.19,2	21,1	18,5	17,8	21,3	20,9					193.49.19,00	G.

In the forenoon of June 29 the Circle was taken from the pier and cleaned, and its axis was oiled. After replacing it, the microscopes were adjusted, but the Telescope was not moved on the limb. Runs taken July 1, 3<sup>h</sup>. (Temp. 62°, 5). Coincidence at the middle wire and Runs taken July 16, 23<sup>h</sup>. (Temp. 64°.)

(a) Extremely cloudy. Not used in determining the adopted zenith point. (b) A brighter star than the other, and differing little in R. (c) A star preceding i Scorpii 13°. (d) This star extremely faint: it precedes the other a fraction of a second. (e) The companion seen both in the reflexion and in the direct observation.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
54,12	- 30. 3. 51,21	29,514	60,5	57,3	32,81				7. 42. 44,26	- 2,72	ε Ursæ Min. R.
	- 30. 3. 40,98								7. 42. 43,49		ε Ursæ Minoris.
(55,34)	37. 37. 35,20				43,68				75. 25. 27,16	- 6,78	α Herculis R.
	37. 37. 38,87								75. 25. 30,83		α Herculis.
51,94	- 61. 41. 35,28	29,710	59,0	58,0	1. 45,38				- 23. 56. 12,38	+ 2,76	A.S.C. 552. SP. R.
	- 61. 41. 38,40								- 23. 56. 15,50		A.S.C. 552. SP.
	50. 42. 17,77				1. 9,52				88. 30. 35,57	- 9,21	21 Ophiuchi.
	56. 10. 17,43				1. 24,82				93. 58. 50,53	- 9,44	30 Ophiuchi.
54,00	- 30. 3. 51,21				32,98				7. 42. 44,09	- 2,43	ε Ursæ Min. R.
	- 30. 3. 50,22								7. 42. 45,08		ε Ursæ Minoris.
	52. 27. 21,40				1. 14,01				90. 15. 43,69	- 8,06	41 Ophiuchi.
	82. 38. 7,65	29,732	57,7	56,2	6. 56,04				120. 32. 11,97	- 8,11	A.S.C. 2044.
	10. 22. 40,68				10,48				48. 9. 59,44	- 3,95	* Al. 17 <sup>b</sup> . 46 <sup>m</sup> . 11 <sup>s</sup> .
	10. 24. 29,92				10,52				48. 11. 48,72	- 3,95	* Al. 17 <sup>b</sup> . 46 <sup>m</sup> . 12 <sup>s</sup> .
	53. 53. 12,59	29,836	59,7	56,8	1. 18,46				91. 41. 39,33	- 11,40	Σ 1985.
	59. 15. 32,61				46,86				77. 3. 27,75	- 7,57	Σ 1988.
	78. 2. 23,39				4. 24,01				115. 53. 55,71	- 17,05	A.S.C. 1840.
	38. 14. 47,27				45,19				76. 2. 40,74	- 6,78	49 Serpentis, <i>np</i>
57,64	56. 29. 31,84				1. 26,42				94. 18. 9,54	- 10,95	ε Ophiuchi R.
	56. 29. 32,40								94. 18. 7,19		ε Ophiuchi.
	76. 56. 25,06			55,0	4. 3,00				114. 47. 36,34	- 15,05	Piazzi XVI. 87.
58,41	- 61. 41. 36,99			54,6	1. 46,56				- 23. 56. 15,27	+ 0,84	A.S.C. 552. SP. R.
	- 61. 41. 37,79								- 23. 56. 16,07		A.S.C. 552. SP.
58,92	- 30. 3. 53,37				33,35				7. 42. 41,56	+ 0,89	ε Ursæ Min. R.
	- 30. 3. 53,16								7. 42. 41,77		ε Ursæ Minoris.
58,50	37. 37. 36,19				44,40				75. 25. 28,87	- 4,34	α Herculis R.
	37. 37. 35,56								75. 25. 28,24		α Herculis.
	10. 22. 39,51				10,56				48. 9. 58,35	- 0,44	* Al. 17 <sup>b</sup> . 46 <sup>m</sup> . 11 <sup>s</sup> .
	10. 24. 24,69				10,59				48. 11. 43,56	- 0,44	* Al. 17 <sup>b</sup> . 46 <sup>m</sup> . 12 <sup>s</sup> .
	38. 14. 46,94	29,900	58,2	55,1	45,45				76. 2. 40,67	- 6,65	49 Serpentis.
	35. 27. 6,82			54,3	38,16				71. 14. 53,26	- 5,09	Σ 2052.
	49. 51. 36,99				1. 8,40				87. 39. 53,67	- 8,62	λ Ophiuchi.
	50. 52. 44,86				1. 10,93				88. 41. 4,07	- 8,09	ι Ophiuchi.
	16. 0. 22,31				16,58				53. 47. 47,17	- 1,58	Σ 2104.
58,64	- 30. 3. 53,33				33,44				7. 42. 41,51	+ 1,16	ε Ursæ Min. R.
	- 30. 3. 53,68								7. 42. 41,16		ε Ursæ Minoris.
59,14	37. 37. 35,15				44,52				75. 25. 27,95	- 4,16	α Herculis R.
	37. 37. 35,81								75. 25. 28,61		α Herculis.
	50. 52. 44,66	29,960	58,0	55,1	1. 10,96				88. 41. 3,90	- 7,39	ι Ophiuchi.
	16. 0. 21,01				16,58				53. 47. 45,87	- 0,11	Σ 2104.
59,98	- 30. 3. 56,67			54,7	33,48				7. 42. 38,13	+ 2,81	ε Ursæ Min. R.
	- 30. 3. 54,33								7. 42. 40,47		ε Ursæ Minoris.
58,89	37. 37. 34,22				44,57				75. 25. 27,07	- 3,02	α Herculis R.
	37. 37. 34,37								75. 25. 27,22		α Herculis.
	17. 8. 30,09				17,85				54. 55. 56,22	+ 0,66	Σ 2178.
58,41	39. 31. 14,55				47,69				77. 19. 10,52	- 2,37	α Ophiuchi R.
	39. 31. 13,74								77. 19. 9,71		α Ophiuchi.
	21. 0. 21,84				22,22				58. 47. 52,34	+ 0,61	Σ 2213.
59,98	- 34. 22. 4,19			53,8	39,62				3. 24. 24,47	+ 2,02	δ Ursæ Min. R.
	- 34. 22. 1,86								3. 24. 26,80		δ Ursæ Minoris.
58,46	13. 34. 12,45				13,99				51. 21. 34,70	+ 2,40	α Lyre R.
	13. 34. 11,78								51. 21. 33,99		α Lyre.
	35. 27. 7,16	29,875	61,2	59,5	37,75				71. 14. 53,17	- 3,86	Σ 2052.
	49. 51. 37,21				1. 7,65				87. 39. 53,14	- 7,83	λ Ophiuchi.
	28. 13. 59,94				30,67				66. 1. 38,89	- 2,26	Σ 2087.
	16. 0. 20,19				16,39				53. 47. 44,86	+ 0,10	Σ 2104.

Coincidence of Micrometer Wire with fixed Wire -- 10', 115 and 10', 125 at middle and 5th wires. From July 8 -- 10', 116 at middle wire

One Micrometer Revolution -- 20" A54.

Correction for Runs -- 5", 0. From July 8 -- 5", 0. (The correction 5", 1 obtained on July 1 is not used.)

Adopted Zenith Point -- 177° 48' 53" 50. From July 8 -- 177° 48' 58", 81.

Assumed Co-latitude -- 37° 47' 8", 28

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
		° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	
July 17	Σ 2178.....	194.55	2.28,7	27,8	26,8	25,9	29,8	27,8					194.57.27,76	G.
	α Ophiuchi R. M....	318.15	1.14,3	15,0	11,8	12,9	14,1	14,3	5,810	+1.29,81			318.17.43,33	G.
	α Ophiuchi.....	217.20	0.12,7	13,2	10,6	10,8	16,7	11,9					217.20.12,62	G.
	(a) Σ 2213.....	198.45	4.19,8	18,8	16,4	15,6	20,6	18,4					198.49.17,47	G.
	α Cygni R. M.....	350.20	0.12,0	15,5	13,4	14,9	15,1	14,0	13,043	-1.1,05			350.19.13,07	G.
	α Cygni.....	185.15	3.43,8	41,8	42,6	41,4	44,3	44,9					185.18.42,45	G.
Aug. 27	(b) δ Ursæ Min. R. M....	32.10	1.21,9	24,1	19,3	20,9	23,7	23,1	10,590	-9,88			32.11.12,14	G.
	δ Ursæ Minoris...	143.25	1.46,0	45,1	41,9	44,8	45,0	45,9					143.26.44,60	G.
	α Lyrae R. M.....	344.15	1.20,9	18,9	19,0	18,6	23,7	20,4	14,188	-1.24,92			344.14.55,18	G.
	α Lyrae.....	191.20	2.62,9	60,5	59,1	61,0	61,0	61,7					191.23.0,70	G.
Aug. 30	Σ 2624.....	194.25	1.25,0	24,4	25,0	24,8	24,8	25,9			+2	+0,43	194.26.25,26	G.
Sept. 1	Σ 2624.....	194.25	1.24,9	22,0	25,4	22,6	23,1	23,6					194.26.23,45	G.
	α Cephei R. M....	7.30	0.24,7	24,3	25,0	25,8	23,8	24,9	8,137	+41,27			7.31.5,97	G.
	α Cephei.....	168.5	1.54,1	50,1	55,0	51,9	53,4	53,1					168.6.52,72	G.
	β Cephei R. M.....	15.25	2.18,1	19,4	19,0	19,0	18,0	19,7	8,283	+38,22			15.27.56,84	G.
	β Cephei.....	160.10	0.2,8	0,0	3,9	1,3	0,8	2,5					160.10.1,88	G.
Sept. 2	(c) Pallas.....	226.50	4.61,8	58,0	60,4	60,1	59,4	60,4					226.55.0,02	G.
	α Cephei R. M....	10.55	2.16,1	17,0	17,7	17,7	17,0	16,8	7,678	+50,85			10.58.7,65	G.
	(c) α Cephei.....	164.35	4.52,1	49,0	53,3	52,3	49,4	53,0					164.39.51,52	G.
Sept. 5	α Ursæ Maj. R. M....	8.15	0.32,1	31,8	30,0	31,0	32,2	31,3	19,622	-3.18,25			8.12.13,10	G.
	α Ursæ Majoris...	167.25	0.47,7	44,8	47,0	46,9	47,2	44,5					167.25.46,27	G.
Sept. 6	Σ 2609.....	192.20	0.38,0	34,6	36,9	37,0	38,0	37,8					192.20.36,98	G.
	Σ 2624. n.....	194.25	1.23,8	20,2	24,2	21,5	21,3	22,9					194.26.22,17	G.
	Σ 2653.....	206.15	0.24,0	20,8	22,3	21,3	22,3	23,1					206.15.22,25	G.
	γ Cygni R. M....	345.20	1.16,2	14,9	16,6	16,7	18,4	16,2	8,848	+26,44			345.21.42,79	G.
	γ Cygni.....	190.15	1.15,2	11,5	15,3	13,0	13,4	14,1					190.16.13,62	G.
	Piazzi XX. 177...	219.15	1.60,3	58,9	60,0	59,3	60,8	60,2					219.16.59,70	G.
	α Delphini R. M....	320.55	2.22,1	21,9	22,2	21,1	22,5	22,1	6,980	+1.5,41			320.58.27,13	G.
	α Delphini.....	214.35	4.32,3	30,0	33,5	29,8	32,2	32,7					214.39.31,25	G.
	(d) Pallas.....	227.45	0.21,0	18,7	21,0	19,7	20,0	20,8			+2	-0,28	227.45.19,89	G.
	α Cephei R. M....	10.55	2.14,9	15,4	18,0	16,4	17,2	16,1	7,596	+52,56			10.58.8,64	G.
	(c) α Cephei.....	164.35	4.50,9	48,0	53,2	50,7	49,0	50,7					164.39.50,42	G.
	α U. Maj. SP. R. M....	63.0	0.27,8	27,9	27,2	29,1	28,0	31,0	17,877	-2.41,85			62.57.46,60	G.
	α Ursæ Majoris SP.	112.40	0.12,3	10,0	12,2	12,1	10,8	12,0					112.40.11,55	G.
Sept. 8	γ Cygni R. M....	345.20	1.28,2	28,9	27,2	30,2	29,5	30,2	9,429	+14,33			345.21.43,20	G.
	γ Cygni.....	190.15	1.12,0	12,6	12,1	13,1	14,7	12,7					190.16.12,73	G.
	Piazzi XX. 177...	219.15	1.58,2	59,0	57,4	58,2	60,6	59,9					219.16.58,67	G.
Sept. 9	α Ursæ Maj. R. M....	8.10	3.31,8	32,4	32,9	31,0	37,7	32,8	14,059	-1.22,22			8.12.10,58	G.
	α Ursæ Majoris...	167.25	0.47,0	47,0	45,1	47,9	47,8	46,2					167.25.46,77	G.
Sept. 10	(c) η Ursæ Maj. R. M....	355.40	3.21,1	20,9	19,8	20,4	26,0	23,0	12,403	-47,70			355.42.33,88	G.
	η Ursæ Majoris...	179.55	0.18,5	21,0	18,0	20,0	22,7	20,3					179.55.20,05	G.
	Piazzi XX. 26. sp.	229.35	1.37,3	36,0	35,4	33,1	40,3	39,0					229.36.36,72	G.
	Σ 2653.....	206.15	0.21,2	20,3	17,8	19,0	21,8	21,0					206.15.20,15	G.
	Σ 2659.....	186.50	1.23,8	23,2	22,1	23,4	26,1	25,4					186.51.23,88	G.
	Piazzi XX. 177...	219.15	1.57,2	58,7	57,2	57,7	60,1	59,8					219.16.58,28	G.
	β Cephei R. M....	15.25	2.23,9	26,2	23,4	25,4	26,2	26,9	8,470	+34,32			15.27.59,45	G.
	(c) β Cephei.....	160.5	4.57,0	57,0	56,2	56,9	59,1	58,8					160.9.57,50	G.
	α U. Maj. SP. R. M....	65.50	0.18,0	20,5	16,8	19,7	21,9	20,8	19,505	-3.15,81			65.47.3,77	G.
	α Ursæ Majoris SP.	109.50	0.51,8	52,5	49,5	52,9	50,7	53,4					109.50.51,72	G.
	Pallas M.....	228.35	1.31,0	31,4	28,8	28,7	32,8	32,4	8,852	+26,35			228.36.57,07	G.
	η Pegasi R. M....	334.55	2.20,9	22,2	19,3	21,9	22,9	22,2	1,339	+3.3,04			335.0.24,41	G.
	η Pegasi.....	200.35	2.32,4	30,0	29,9	29,9	31,5	32,9					200.37.30,88	G.

Coincidence at the middle wire and Runs taken Sept. 6, 22<sup>h</sup>. (Temp. 55°). The coincidence found to be the same as on July 16.

Runs taken Sept. 10, 11<sup>h</sup>. (Temp. 59°, 5)

(a) Very cloudy. (b) Observations with the Circle were suspended during Mr Glaisher's absence on vacation.  
 (c) No correction for Runs. (d) Correction for change of N.P.D. = -0'',30. (e) Extremely difficult, so faint.  
 Not used in determining the adopted zenith point.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	"	"	"	"	" " "	"	"
57,98	17. 8. 28,05	29,870	59,7	57,6	17,69				54. 55. 54,92	+ 0,88	Σ 2178.
	39. 31. 13,48				47,27				77. 19. 11,03	- 2,21	α Ophiuchi R.
	39. 31. 13,81				22,02				77. 19. 9,36	+ 0,84	α Ophiuchi.
	21. 0. 18,66				7,60				58. 47. 48,96	+ 4,66	Σ 2213.
57,76	7. 29. 45,74	29,820	56,5	53,5					45. 17. 1,62		α Cygni R.
	7. 29. 43,64								45. 16. 59,52		α Cygni.
58,57	- 34. 22. 13,21	30,180	68,4	67,9	38,80				3. 24. 16,27	+ 12,22	δ Ursæ Min. R.
	- 34. 22. 14,33				13,70				3. 24. 15,15	+ 11,94	δ Ursæ Minoris.
57,94	13. 34. 3,75								51. 21. 25,73		α Lyræ R.
	13. 34. 1,77								51. 21. 23,75		α Lyræ.
59,33	16. 37. 26,33	29,814	65,0	63,4	16,89				54. 24. 51,50	+ 16,65	Σ 2624.
	16. 37. 24,52				17,20				54. 24. 50,00	+ 17,09	Σ 2624.
	- 9. 42. 7,04				9,87				28. 4. 51,37	+ 19,31	α Cephei R.
	- 9. 42. 6,21				18,36				28. 4. 52,20	+ 18,69	α Cephei.
59,36	- 17. 38. 57,91								20. 7. 52,01		β Cephei R.
	- 17. 38. 57,05								20. 7. 52,87		β Cephei.
59,59	49. 6. 1,09	29,738	56,4	53,5	1. 6,36	2,90			86. 54. 12,83		Pallas.
	- 13. 9. 18,72				13,45				24. 37. 46,11	+ 18,60	α Cephei R.
	- 13. 9. 7,41								24. 37. 47,42		α Cephei.
59,68	- 10. 23. 14,17	29,684	55,0	56,2	10,48				27. 23. 43,63	- 12,75	α Ursæ Maj. R.
	- 10. 23. 12,66								27. 23. 45,14		α Ursæ Majoris.
58,21	14. 31. 38,05	29,700	53,4	51,7	14,95				52. 19. 1,28	+ 18,03	Σ 2609.
	16. 37. 23,24				17,23				54. 24. 48,75	+ 18,06	Σ 2624. π.
	28. 26. 23,32				31,25				66. 14. 2,85	+ 17,12	Σ 2653.
	12. 27. 16,14				12,75				50. 14. 37,17	+ 19,32	γ Cygni R.
	12. 27. 14,69				50,95				50. 14. 35,72	+ 16,18	γ Cygni.
	41. 28. 0,77				43,21				79. 16. 0,00	+ 17,47	Piazzi XX. 177.
59,19	36. 50. 31,80	29,710	50,7	48,6	1. 8,97	2,94			74. 38. 23,29		α Delphini R.
	36. 50. 32,52				13,57				74. 38. 23,81	+ 20,09	α Delphini.
	49. 56. 20,96				2. 4,73				87. 44. 35,27	- 12,92	Pallas.
59,53	- 13. 9. 9,71								24. 37. 43,00		α Cephei R.
	- 13. 9. 8,51								24. 37. 46,20		α Cephei.
59,08	- 65. 8. 47,67								- 27. 23. 44,12		α U. Maj. SP. R.
	- 65. 8. 47,58								- 27. 23. 43,83		α Ursæ Maj. SP.
57,97	12. 27. 15,73	29,900	58,0	55,7	12,73				50. 14. 36,74	+ 19,74	γ Cygni R.
	12. 27. 13,80				50,88				50. 14. 34,81	+ 16,40	γ Cygni.
	41. 27. 59,74								79. 15. 58,90		Piazzi XX. 177.
58,63	- 10. 23. 11,65	29,980	67,2	67,5	10,34				27. 23. 46,29	- 14,14	α Ursæ Maj. R.
	- 10. 23. 12,16								27. 23. 45,78		α Ursæ Majoris.
(56,97)	2. 6. 25,05	29,974	68,2	68,9	2,07				39. 53. 35,40	- 6,13	η Ursæ Maj. R.
	2. 6. 21,12				1. 12,46				39. 53. 31,47	+ 12,90	η Ursæ Majoris.
	51. 47. 37,79				30,94				89. 35. 58,53	+ 17,72	Piaz. XX. 26. sp.
	28. 26. 21,22				9,09				66. 14. 0,44	+ 20,15	Σ 2653.
	9. 2. 24,95				50,45				46. 49. 42,32	+ 16,61	Σ 2659.
58,43	41. 27. 59,35	29,986	61,9	60,7	18,20				79. 15. 58,08		Piazzi XX. 177.
	- 17. 39. 0,52								20. 7. 49,56	+ 21,78	β Cephei R.
	- 17. 39. 1,43				2. 20,34				20. 7. 48,65	- 14,55	β Cephei.
57,75	- 67. 58. 4,84								- 30. 13. 16,00		α U. Maj. SP. R.
	- 67. 58. 7,21								- 30. 13. 19,27		α Ursæ Maj. SP.
57,65	50. 47. 58,14	29,982	61,3	59,7	1. 10,16	2,98			88. 36. 13,60		Pallas.
	22. 48. 54,52				24,10				60. 36. 6,90	+ 24,17	η Pegasi R.
	22. 48. 31,95								60. 36. 4,33		η Pegasi.

Coincidence of Micrometer Wire with fixed Wire = 107,116 at the middle wire.

One Micrometer Revolution = 20",854.

Correction for Run = - 5" S. From Aug. 27 = 3",1. From Sept. 9 = 2",6.

Adopted Zenith Point = 177°. 48'. 58". 81. From Aug. 27 = 177°. 48'. 58". 93.

Assumed Co-latitude = 37°. 47' 8", 28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Sept. 10	$\epsilon$ Cephei R. M. ...	10.55	2.16,0	17,8	16,1	17,8	18,9	19,0	7,600	+52,48			10.58.9,88	G.
	(a) $\epsilon$ Cephei .....	164.35	4.46,2	47,1	47,0	46,7	47,0	49,3					164.39.47,22	G.
	$\alpha$ U. Maj. SP. R. M. ...	62.55	4.25,4	26,4	25,0	26,0	29,0	30,3	14,782	-1.37,31			62.57.49,32	G.
	$\alpha$ Ursæ Maj. SP. ...	112.40	0.6,0	6,7	5,0	6,4	5,4	6,3					112.40.5,95	G.
Sept. 11	(b) Polaris SP. R. M. ...	37.5	2.16,9	18,4	11,5	17,0	16,8	20,2	9,655	+9,61		+1,58	37.7.27,79	G.
	(b) Polaris SP. ....	138.30	0.35,3	31,3	31,2	32,1	35,2	34,9				-1,39	138.30.31,89	G.
	Polaris SP. R. M. ...	37.5	2.17,8	20,8	13,8	18,6	19,1	19,2	9,700	+8,68			37.7.26,70	G.
	Polaris SP. ....	138.30	0.32,1	31,0	28,1	29,6	32,0	32,3					138.30.30,80	G.
	(a) Pallas. ....	228.45	4.58,0	60,5	58,0	59,1	61,5	59,0					228.49.59,35	G.
	$\alpha$ Pegasi R. M. ...	319.55	2.20,3	21,8	19,0	21,1	23,2	22,8	7,264	+59,47			319.58.20,64	G.
Sept. 13	$\alpha$ Pegasi .....	215.35	4.35,9	36,1	34,3	34,0	38,3	35,4					215.39.35,27	G.
	$\Sigma$ 2523. np. ....	209.5	5.6,3	8,1	6,7	5,9	10,4	7,0					209.10.6,95	G.
	(c) $\Sigma$ 2576. ....	196.45	1.55,3	54,5	53,0	54,8	55,8	54,4					196.46.54,47	G.
	(d) Pallas. ....	229.15	1.9,0	10,8	11,0	10,2	11,6	11,0			+2	-0,30	229.16.10,20	G.
	$\eta$ Pegasi R. M. ...	334.55	2.26,9	26,1	24,2	25,5	27,6	28,2	1,574	+2.58,13			335.0.24,33	G.
	$\eta$ Pegasi. ....	200.35	2.32,3	30,1	29,2	30,4	32,0	32,4					200.37.30,85	G.
	$\epsilon$ Cephei R. M. ...	10.55	2.23,9	24,9	23,8	25,2	26,9	26,1	7,876	+46,71			10.58.11,64	G.
	$\epsilon$ Cephei. ....	164.35	4.46,2	46,1	47,7	45,3	48,0	48,0					164.39.46,47	G.
	$\alpha$ Ur. Maj. SP. R. M. ...	62.55	4.47,0	48,8	46,7	46,9	49,5	50,3	15,620	-1.54,78			62.57.53,00	G.
	$\alpha$ Ursæ Maj. SP. ...	112.35	5.5,0	5,1	4,3	3,8	6,0	6,8					112.40.4,73	G.
	(e) $\lambda$ Draconis SP. R. ...	55.20	2.26,0	29,0	23,7	26,8	28,2	28,3					55.22.26,78	G.
	$\lambda$ Draconis SP. ...	120.15	0.30,3	32,4	27,8	31,9	30,1	32,0					120.15.30,70	G.
Sept. 15	$\Sigma$ 2523. np. ....	209.10	0.5,0	6,8	5,9	6,6	6,8	5,8					209.10.6,13	G.
	$\Sigma$ 2576. np. ....	196.45	1.53,3	51,2	52,3	52,7	52,0	52,4					196.46.52,03	G.
	$\pi$ Aquilæ. ....	218.35	0.17,0	17,9	14,1	17,9	16,8	18,8					218.35.17,03	G.
	$\Sigma$ 2600. sp. ....	207.55	0.44,6	43,6	42,7	43,9	44,4	44,1					207.55.43,78	G.
	$\Sigma$ 2609. ....	192.20	0.35,9	35,2	34,0	35,9	36,8	36,9					192.20.35,70	G.
	$\Sigma$ 2616. ....	215.50	2.15,1	12,9	13,1	12,9	14,0	13,0					215.52.13,17	G.
	Piazzi XX. 26. sp. ...	229.35	1.39,8	37,4	36,7	33,1	38,0	39,0					229.36.37,08	G.
	$\Sigma$ 2653. ....	206.15	0.21,7	19,8	18,3	19,8	20,6	20,1					206.15.20,00	G.
	(f) $\Sigma$ 2665. ....	216.5	3.13,2	10,9	12,1	11,4	12,7	13,0					216.8.11,73	G.
	(g) $\alpha$ Cephei R. M. ...	7.25	4.10,0	9,2	10,9	10,0	10,0	10,7	4,370	+1.59,70			7.31.9,18	G.
	$\alpha$ Cephei. ....	168.5	1.49,2	46,9	47,4	47,8	47,3	48,7					168.6.47,60	G.
	(h) $\beta$ Cephei. ....	15.25	2.36,8	37,0	36,0	37,0	36,7	37,9	8,919	+24,84			15.28.1,34	G.
	(a) $\beta$ Cephei. ....	160.5	4.56,9	56,1	56,8	56,0	55,3	57,1					160.9.56,37	G.
Sept. 16	$\Sigma$ 2576. np. ....	196.45	1.52,0	50,1	51,9	50,2	49,7	51,1					196.46.50,55	G.
	$\pi$ Aquilæ. ....	218.35	0.15,8	15,1	14,0	14,9	15,2	16,8					218.35.15,27	G.
	$\Sigma$ 2600. sp. ....	207.55	0.44,1	41,5	43,5	42,6	43,9	43,7					207.55.43,12	G.
	$\psi$ Cygni. ....	178.0	0.20,2	17,9	20,1	19,2	17,2	20,0					178.0.19,05	G.
	$\Sigma$ 2609. sp. ....	192.20	0.36,5	32,8	35,3	34,8	34,8	36,2					192.20.34,98	G.
	$\Sigma$ 2616. ....	215.50	2.14,8	12,1	14,0	12,9	14,3	14,0					215.52.13,35	G.
	Piazzi XX. 26. sp. ...	229.35	1.37,0	33,3	34,8	29,8	35,0	36,8					229.36.34,20	G.
	$\Sigma$ 2659. ....	186.50	1.25,4	22,7	24,5	24,0	22,3	25,3					186.51.23,82	G.
	(i) $\star$ R. 20 <sup>h</sup> . 11 <sup>m</sup> . 57 <sup>s</sup> . ...	216.5	2.21,8	18,5	20,4	19,3	19,5	22,0					216.7.19,90	G.
	$\Sigma$ 2665 M. ....	216.5	2.21,8	18,5	20,4	19,3	19,5	22,0	7,644	+51,43			216.8.11,33	G.
	(d) Pallas. ....	229.55	0.31,0	28,6	27,8	27,9	28,8	30,7			+2	-0,30	229.55.28,75	G.
	$\eta$ Pegasi R. M. ...	334.55	2.24,8	24,2	24,0	23,8	22,6	25,1	1,350	+3.2,68			335.0.26,40	G.
	$\eta$ Pegasi. ....	200.35	2.32,8	28,0	30,7	28,9	27,9	30,9					200.37.29,48	G.
	$\epsilon$ Cephei R. M. ...	10.55	2.32,8	32,7	33,2	33,3	33,0	34,3	8,184	+40,17			10.58.13,00	G.
Sept. 17	$\epsilon$ Cephei. ....	164.35	4.47,0	44,1	49,0	45,3	44,9	47,9					164.39.45,63	G.
	(k) $\alpha$ Ur. Maj. SP. R. M. ...	62.55	4.47,0	46,7	46,4	46,6	45,9	49,0	15,671	-1.55,97			62.57.50,23	G.
	$\alpha$ Ursæ Maj. SP. ...	112.35	5.10,6	8,0	10,2	8,0	6,8	9,8					112.40.8,10	G.
	$\alpha$ Ursæ Maj. R. M. ...	8.10	3.23,0	22,7	23,2	24,2	24,7	23,8	13,648	-1.13,79			8.12.9,29	G.
	$\alpha$ Ursæ Majoris. ...	167.25	0.51,4	49,4	51,9	51,2	53,0	50,2					167.25.51,05	G.
	(l) $\star$ R. 19 <sup>h</sup> . 20 <sup>m</sup> . 6 <sup>s</sup> . ...	202.55	2.33,8	34,8	33,5	32,8	35,0	33,5	7,740	+49,43			202.57.33,50	G.

Coincidence at middle wire taken Sept. 20, 1<sup>h</sup>. Runs taken Sept. 20, 1<sup>h</sup>. (Temp. 65°), and Sept. 23, 22<sup>h</sup>. (Temp. 58°)  
 Sept. 11. 2<sup>h</sup>. Molyneux fast on Hardy, 26<sup>h</sup>.

(a) No correction for Runs. (b) Times by Molyneux, 12<sup>h</sup>. 57<sup>m</sup>. 40<sup>s</sup>. and 12<sup>h</sup>. 58<sup>m</sup>. 0<sup>s</sup>. (c) Probably  $\epsilon$ f. See Sept. 15 and 16. (d) Correction for change of N.P.D. = -0<sup>m</sup>. 30. (e) Accidentally on the fixed wire. (f) The following of two bright stars. (g) Very cloudy. (h) Faint. (i) The preceding of two bright stars. (k) Mercury agitated by wind. (l) Faint. This star was taken for  $\Sigma$  2525, which it precedes 2<sup>s</sup>.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	inch.	"	"	"	"	"	"	"	"	"
58,55	- 13 . 9 . 10,95	29,982	61,3	59,7	13,39				24 . 37 . 43,94	+ 21,54	$\alpha$ Cephei R.
	- 13 . 9 . 11,71								24 . 37 . 45,18		$\alpha$ Cephei.
57,64	- 65 . 8 . 50,39				2 . 3,06				- 27 . 23 . 45,17	- 14,31	$\alpha$ Urs. Maj. SP. R.
	- 65 . 8 . 52,98								- 27 . 23 . 47,76		$\alpha$ Ursae Maj. SP.
59,84	- 39 . 18 . 28,86	30,034	64,1	68,0	46,21				- 1 . 32 . 6,79	+ 11,84	Polaris SP. R.
	- 39 . 18 . 27,04								- 1 . 32 . 4,97		Polaris SP.
58,75	- 39 . 18 . 27,77				46,21				- 1 . 32 . 5,70	+ 11,84	Polaris SP. R.
	- 39 . 18 . 28,13								- 1 . 32 . 6,06		Polaris SP.
	51 . 1 . 0,42	29,988	64,3	64,0	1 . 10,10	2,99			88 . 49 . 15,81		Pallas.
57,96	37 . 50 . 38,29				44,13				75 . 38 . 30,70	+ 25,13	$\alpha$ Pegasi R.
	37 . 50 . 36,34								75 . 38 . 28,75		$\alpha$ Pegasi.
	31 . 21 . 8,02	29,874	66,4	67,0	34,28				69 . 8 . 50,58	+ 14,26	$\Sigma$ 2523. <i>np.</i>
	18 . 57 . 55,54				19,34				56 . 45 . 23,16	+ 17,88	$\Sigma$ 2576.
	51 . 27 . 11,27		66,0	65,7	1 . 10,70	3,01			89 . 15 . 27,24		Pallas.
57,59	22 . 48 . 34,60				23,73				60 . 36 . 6,61	+ 24,85	$\eta$ Pegasi R.
	22 . 48 . 31,92								60 . 36 . 3,93		$\eta$ Pegasi.
59,06	- 13 . 9 . 12,71				13,19				24 . 37 . 42,38	+ 22,63	$\alpha$ Cephei R.
	- 13 . 9 . 12,46								24 . 37 . 42,63		$\alpha$ Cephei.
58,87	- 65 . 8 . 54,07				2 . 1,15				- 27 . 23 . 46,94	- 15,33	$\alpha$ Urs. Maj. SP. R.
	- 65 . 8 . 54,20								- 27 . 23 . 47,07		$\alpha$ Ursae Maj. SP.
58,74	- 57 . 33 . 27,85			65,1	1 . 28,62				- 19 . 47 . 48,19	- 15,57	$\lambda$ Dracon. SP. R.
	- 57 . 33 . 28,23								- 19 . 47 . 48,57		$\lambda$ Draconis SP.
	31 . 21 . 7,20	29,860	65,2	63,4	34,51				69 . 8 . 49,99	+ 14,45	$\Sigma$ 2523. <i>np.</i>
	18 . 57 . 53,10				19,47				56 . 45 . 20,85	+ 18,16	$\Sigma$ 2576. <i>np.</i>
	40 . 46 . 18,10				48,83				78 . 34 . 15,21	+ 13,87	$\pi$ Aquilae.
	30 . 6 . 44,83				32,85				67 . 54 . 25,98	+ 16,77	$\Sigma$ 2600. <i>sp.</i>
	14 . 31 . 36,77				14,68				52 . 18 . 59,73	+ 19,61	$\Sigma$ 2609.
	38 . 5 . 14,24				44,33				75 . 51 . 6,85	+ 15,68	$\Sigma$ 2616.
	51 . 47 . 38,15				1 . 11,86				89 . 35 . 58,29	+ 13,13	Piazzi XX. 26. <i>sp.</i>
	28 . 26 . 21,07				30,68				66 . 14 . 0,03	+ 18,38	$\Sigma$ 2653.
	38 . 19 . 12,80				44,75				76 . 7 . 5,83	+ 16,86	$\Sigma$ 2665.
58,39	- 9 . 42 . 10,25	29,850	63,8	61,7	9,72				28 . 4 . 48,31	+ 23,65	$\alpha$ Cephei R.
	- 9 . 42 . 11,33								28 . 4 . 47,23		$\alpha$ Cephei.
58,56	- 17 . 39 . 2,41				18,08				20 . 7 . 47,79	+ 23,38	$\beta$ Cephei R.
	- 17 . 39 . 2,56								20 . 7 . 47,64		$\beta$ Cephei.
	18 . 57 . 51,62	29,844	62,2	56,8	19,72				56 . 45 . 19,62	+ 18,29	$\Sigma$ 2576. <i>np.</i>
	40 . 46 . 16,34				49,44				78 . 34 . 14,06	+ 13,94	$\pi$ Aquilae.
	30 . 6 . 44,19				33,27				67 . 54 . 25,74	+ 16,88	$\Sigma$ 2600. <i>sp.</i>
	0 . 11 . 20,12				0,19				37 . 58 . 28,59	+ 20,97	$\psi$ Cygni.
	14 . 31 . 36,05				14,87				52 . 18 . 59,20	+ 19,74	$\Sigma$ 2609. <i>sp.</i>
	38 . 5 . 14,42				44,89				75 . 51 . 7,59	+ 13,47	$\Sigma$ 2616.
	51 . 47 . 35,27				1 . 12,77				89 . 35 . 56,32	+ 13,18	Piazzi XX. 26. <i>sp.</i>
	9 . 2 . 24,89				9,13				46 . 49 . 42,30	+ 21,31	$\Sigma$ 2659.
	38 . 18 . 20,97				45,30				76 . 6 . 14,55	+ 16,95	* $\Delta$ 20 <sup>h</sup> . 11 <sup>m</sup> . 57 <sup>s</sup> .
	38 . 19 . 12,40				45,33				76 . 7 . 6,01	+ 16,95	$\Sigma$ 2665.
	52 . 6 . 29,82	29,862	57,3	54,2	1 . 14,04	3,03			89 . 54 . 49,11		Pallas.
57,94	22 . 48 . 32,53				24,27				60 . 36 . 5,08	+ 25,52	$\eta$ Pegasi R.
	22 . 48 . 30,55								60 . 36 . 3,10		$\eta$ Pegasi.
59,32	- 13 . 9 . 14,07				13,49				24 . 37 . 40,72	+ 23,69	$\alpha$ Cephei R.
	- 13 . 9 . 13,30								24 . 37 . 41,49		$\alpha$ Cephei.
59,17	- 65 . 8 . 51,30				2 . 3,95				- 27 . 23 . 46,97	- 16,35	$\alpha$ Urs. Maj. SP. R.
	- 65 . 8 . 50,83								- 27 . 23 . 46,50		$\alpha$ Ursae Maj. SP.
60,17	- 10 . 23 . 10,36	29,950	63,7	62,7	10,43				27 . 23 . 47,49	- 16,52	$\alpha$ Ursae Maj. R.
	- 10 . 23 . 7,58								27 . 23 . 49,97		$\alpha$ Ursae Majoris.
	31 . 21 . 7,45	29,926	61,0	59,5	34,86				69 . 8 . 50,59	+ 14,62	$\Sigma$ 2523. <i>np.</i>
	25 . 8 . 34,57				26,86				62 . 56 . 9,71	+ 15,94	* $\Delta$ 19 <sup>h</sup> . 20 <sup>m</sup> . 6 <sup>s</sup> .

Coincidence of Micrometer Wire with fixed Wire = 10",116 at the middle wire. From Sept. 15 = 10",110.

One Micrometer Revolution = 20",854.

Correction for Run = - 2",5. From Sept. 15 = - 4",6, the mean of two results, - 4",2 and - 5",1.

Adopted Zenith Point = 177°. 48'. 58".93.

Assumed Co-latitude = 37°. 47'. 8".28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  ".	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F					"	"	"	
			" "	" "	" "	" "	" "	" "					"	"	"	
Sept. 17	Piazzi XIX. 149. <i>sp.</i>	193. 45	3. 46,1	46,2	45,0	43,8	46,5	45,8					193. 48. 44,95			G.
	Σ 2556.	208. 5	2. 15,1	16,0	15,7	15,1	16,1	15,4					208. 7. 15,22			G.
	δ Cygni.	185. 15	1. 37,0	36,0	37,1	35,9	37,0	37,3					185. 16. 36,47			G.
	π Aquilæ.	218. 35	0. 17,8	19,0	16,9	18,0	19,0	18,3					218. 35. 18,12			G.
	Σ 2600. <i>sp.</i>	207. 55	0. 44,8	44,6	43,8	43,8	44,4	44,0					207. 55. 44,13			G.
	ψ Cygni.	178. 0	0. 18,8	19,3	19,3	18,9	20,1	19,5			-1	+0,19	178. 0. 19,46			G.
	Σ 2606.	197. 10	0. 19,6	18,2	18,1	19,1	18,0	18,3					197. 10. 18,50			G.
	Σ 2616.	215. 50	2. 16,9	15,8	15,2	15,7	15,6	16,3					215. 52. 15,57			G.
	(a) Σ 2643.	233. 25	3. 17,1	16,5	16,2	15,0	17,3	18,0					233. 28. 16,18			G.
	Σ 2659.	186. 50	1. 25,7	25,1	24,3	24,8	24,8	25,9					186. 51. 24,88			G.
	(b) * R. 20 <sup>h</sup> . 11 <sup>m</sup> . 57 <sup>s</sup> .	216. 5	2. 22,1	22,3	20,9	21,3	21,1	22,6					216. 7. 21,37			G.
	Σ 2665 M.	216. 5	2. 22,1	22,3	20,9	21,3	21,1	22,6	7,580	+52,77			216. 8. 14,14			G.
	Σ 2668.	191. 5	1. 58,4	57,0	57,9	57,2	57,2	58,1					191. 6. 57,33			G.
	Pallas.	230. 5	3. 38,0	36,0	36,0	35,2	38,0	38,9					230. 8. 36,47			G.
	η Pegasi R. M.	334. 55	3. 23,9	24,1	22,8	23,0	24,0	24,1	4,135	+2. 4,60			335. 0. 27,73			G.
	η Pegasi	200. 35	2. 32,0	29,5	31,1	29,3	28,9	31,1					200. 37. 29,93			G.
	ι Cephei R. M.	10. 55	2. 31,9	31,6	32,5	31,9	32,4	33,8	8,162	+40,62			10. 58. 12,59			G.
	ι Cephei.	164. 35	4. 47,7	46,1	50,0	46,5	47,2	48,8					164. 39. 46,98			G.
	(c) α Ur. Maj. SP. R. M.	62. 55	4. 26,1	26,6	26,0	26,0	26,0	29,1	14,638	-1. 34,44			62. 57. 51,51			G.
	α Ursæ Majoris SP.	112. 35	5. 9,0	7,3	9,0	7,0	6,7	8,2					112. 40. 7,08			G.
	α Ursæ Maj. R. M.	8. 10	3. 17,7	17,0	17,5	16,8	18,2	16,8	13,364	-1. 7,85			8. 12. 8,98			G.
	α Ursæ Majoris.	167. 25	0. 50,4	49,6	50,3	49,0	51,0	48,3					167. 25. 49,65			G.
Sept. 18	(d) Polaris SP. R. M.	37. 5	2. 35,1	33,1	30,1	31,8	33,0	31,8	10,309	-4,16			37. 7. 27,94			G.
	Polaris SP.	138. 30	0. 34,3	35,0	31,7	32,8	34,0	33,8					138. 30. 33,52			G.
	ψ Cygni.	178. 0	0. 18,6	18,9	18,7	18,4	18,1	19,0			-1	+0,19	178. 0. 18,76			G.
	Σ 2606.	197. 10	0. 19,0	17,9	18,2	18,2	17,8	18,0			+1	+0,09	197. 10. 18,22			G.
	Σ 2611. <i>sp.</i>	183. 5	0. 29,0	28,0	29,3	29,1	28,9	28,9					183. 5. 28,78			G.
	Σ 2619. <i>sp.</i>	182. 10	2. 3,2	1,4	2,7	1,7	1,8	2,7					182. 12. 1,95			G.
	Σ 2643.	233. 25	3. 17,0	16,0	17,0	15,8	17,2	17,2					233. 28. 16,20			G.
	A.S.C. 2697.	230. 10	3. 25,0	23,0	23,8	23,0	25,4	25,8					230. 13. 23,82			G.
	(e) Pallas.	230. 20	1. 44,8	43,8	43,0	42,8	44,1	45,0			+2	-0,30	230. 21. 43,35			G.
	ζ Pegasi R. M.	315. 35	1. 29,3	30,0	28,3	29,0	29,0	29,2	6,860	+1. 7,77			315. 37. 36,67			G.
	ζ Pegasi	220. 0	0. 23,1	23,1	20,8	22,3	22,0	23,2					220. 0. 22,35			G.
	λ Drae. SP. R. M.	55. 20	2. 29,0	30,1	27,4	28,9	30,9	30,7	10,262	-3,17			55. 22. 25,95			G.
	λ Draconis SP.	120. 15	0. 32,4	34,0	31,8	31,9	31,0	33,1					120. 15. 32,28			G.
	γ Cephei R. M.	22. 20	0. 23,4	23,8	22,3	23,4	22,3	24,9	9,040	+22,31			22. 20. 45,59			G.
	γ Cephei.	153. 15	2. 14,1	13,8	15,8	13,4	14,0	15,2					153. 17. 14,05			G.
Sept. 21	(f) δ Ursæ Min. R. M.	32. 10	1. 26,9	29,0	24,8	30,0	27,5	32,7	10,731	-12,95			32. 11. 15,32			G.
	δ Ursæ Minoris.	143. 25	1. 41,9	42,8	39,8	43,4	41,0	45,0					143. 26. 42,05			G.
	α Lyræ R. M.	344. 15	0. 30,3	31,7	28,2	32,8	30,2	33,7	11,710	-33,36			344. 14. 57,71			G.
	α Lyræ.	191. 20	2. 59,6	58,3	57,8	60,3	56,8	60,3					191. 22. 58,38			G.
	(g) * R. 19 <sup>h</sup> . 20 <sup>m</sup> . 6 <sup>s</sup> . M.	202. 55	3. 9,2	8,0	6,5	9,3	6,8	10,3	11,710	-33,36			202. 57. 34,51			G.
	Piazzi XIX. 149. <i>sp.</i>	193. 45	3. 45,0	42,4	41,9	44,8	41,9	46,8					193. 48. 43,23			G.
	Σ 2556.	208. 5	2. 15,0	14,0	13,1	16,2	14,8	18,0					208. 7. 14,85			G.
	Σ 2611. <i>sp.</i>	183. 5	0. 29,0	28,4	26,8	30,3	26,0	31,8			+2	+0,64	183. 5. 29,29			G.
	Σ 2619. <i>sp.</i>	182. 10	1. 61,6	59,0	59,7	62,0	58,3	63,4			+2	+0,67	182. 12. 1,04			G.
	Σ 2643.	233. 25	3. 16,8	15,5	14,8	16,0	16,0	19,0					233. 28. 15,85			G.
	Σ 2666 M.	189. 45	0. 21,1	21,1	18,3	23,9	19,2	24,1	5,717	+1. 31,62			189. 46. 52,85			G.
	Σ 2667. <i>uf.</i>	184. 50	2. 32,8	31,3	29,4	32,8	29,3	34,4					184. 52. 31,28			G.
	Σ 2668.	191. 5	1. 56,8	54,6	55,1	57,8	55,0	58,3			+1	+0,12	191. 6. 56,10			G.
	(h) Pallas.	231. 0	0. 51,3	50,8	50,0	52,8	49,4	53,9			+2	-0,31	231. 0. 50,94			G.
Sept. 22	ζ Pegasi R. M.	315. 35	1. 28,3	28,0	25,0	29,1	26,9	31,3	6,860	+1. 7,77			315. 37. 35,64			G.
	ζ Pegasi.	220. 0	0. 21,7	22,8	18,8	24,0	19,9	24,0					220. 0. 21,82			G.
	δ Ursæ Min. R. M.	32. 10	1. 34,9	37,0	33,0	37,8	35,3	39,1	11,099	-20,53			32. 11. 15,30			G.
	δ Ursæ Minoris.	143. 25	1. 41,4	42,9	40,0	43,9	41,4	44,6					143. 26. 42,10			G.
	α Lyræ R. M.	344. 15	1. 44,7	45,2	43,0	46,9	44,8	46,9	15,231	-1. 46,80			344. 14. 58,18			G.
	α Lyræ.	191. 20	2. 59,7	58,1	58,3	60,8	56,5	60,3					191. 22. 58,48			G.
	β Lyræ R. M.	338. 45	2. 20,3	21,0	19,5	23,9	21,1	24,8	9,362	+15,60			338. 47. 37,02			G.
	β Lyræ.	196. 50	0. 20,9	20,2	17,0	22,0	17,8	22,0					196. 50. 19,93			G.

(a) The only star in the field. (b) Preceding Σ 2665 12<sup>s</sup>, and of the same magnitude. (c) Not satisfactory.  
 (d) Very cloudy and doubtful. (e) No correction for curvature of path. (f) Previous to this observation the  
 circle was struck with some violence. (g) Faint. Taken unintentionally on the micrometer wire. A brighter star  
 of nearly the same R.A., and of greater N.P.D. by 3', was seen in the field, which no doubt is Σ 2525, the star intended  
 to be taken. (h) Correction for change of N.P.D. = -0",30.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
	15. 59. 46.02	29,926	61,0	59,5	16,41				53. 47. 10,71	+ 17,68	Piaz. XIX. 149. <i>sp.</i>
	30. 18. 16,29				33,44				68. 5. 58,01	+ 15,80	Σ 2556.
	7. 27. 37,54				7,30				45. 14. 53,32	+ 19,90	δ Cygni.
	40. 46. 19,19				49,32				78. 34. 16,79	+ 14,02	π Aquilæ.
	30. 6. 45,20				33,18				67. 54. 26,66	+ 16,99	Σ 2600. <i>sp.</i>
	0. 11. 20,53				0,19				37. 58. 29,50	+ 21,15	ψ Cygni.
	19. 21. 19,57				20,10				57. 8. 47,95	+ 19,19	Σ 2606.
	38. 3. 16,64				44,77				75. 51. 9,69	+ 15,85	Σ 2616.
	55. 39. 17,25			58,6	1. 23,70				93. 27. 49,23	+ 12,20	Σ 2643.
	9. 2. 25,95				9,12				46. 49. 43,35	+ 21,50	Σ 2659.
	38. 18. 22,44				45,26				76. 6. 15,98	+ 17,02	* <i>AR.</i> 20 <sup>b</sup> . 11 <sup>m</sup> . 57 <sup>s</sup> .
	38. 19. 15,21				45,29				76. 7. 8,28	+ 17,02	Σ 2665.
	13. 17. 58,40				13,55				51. 5. 20,23	+ 21,29	Σ 2668.
	52. 19. 37,54	29,900	57,6	54,5	1. 14,67	3,03			90. 7. 57,46		Pallas.
58,83	22. 48. 31,20								60. 36. 3,77	+ 26,73	η Pegasi R.
	22. 48. 31,00				24,29				60. 36. 3,57		η Pegasi.
59,78	- 13. 9. 13,66								24. 37. 41,12	+ 24,04	ι Cephei R.
	- 13. 9. 11,95				13,50				24. 37. 42,83		ι Cephei.
59,29	- 65. 8. 52,58				2. 4,03				- 27. 23. 48,33	- 16,69	α Ursæ Maj. SP. R.
	- 65. 8. 51,85								- 27. 23. 47,60		α Ursæ Maj. SP.
59,32	- 10. 23. 10,05	29,884	60,0	60,7	10,45				27. 23. 47,78	- 16,86	α Ursæ Maj. R.
	- 10. 23. 9,28								27. 23. 48,55		α Ursæ Majoris.
60,73	- 39. 18. 29,01	29,886	62,5	63,5	46,39				- 1. 32. 7,12	+ 14,34	Polaris SP. R.
	- 39. 18. 25,41								- 1. 32. 8,52		Polaris SP.
	0. 11. 19,83	20,900	60,2	58,5	0,19				37. 58. 28,30	+ 21,32	ψ Cygni.
	19. 21. 19,29				20,13				57. 8. 47,70	+ 19,33	Σ 2606.
	5. 16. 29,85				5,29				43. 3. 43,42	+ 21,12	Σ 2611. <i>sp.</i>
	4. 23. 3,02				4,39				42. 10. 15,69	+ 21,31	Σ 2619. <i>sp.</i>
	55. 39. 17,27				1. 23,64				93. 27. 49,19	+ 12,22	Σ 2643.
	52. 24. 24,89	29,920	58,0	55,1	1. 14,84	3,04			90. 12. 48,01	+ 23,82	A.S.C. 2697.
	52. 32. 44,42				1. 15,22				90. 21. 4,88		Pallas.
59,51	42. 11. 22,26								79. 59. 22,82	+ 25,10	ζ Pegasi R.
	42. 11. 23,42				52,28				79. 59. 23,98		ζ Pegasi.
59,12	- 57. 33. 27,02		57,3	54,7	1. 30,63				- 19. 47. 49,37	- 17,37	λ Drac. SP. R.
	- 57. 33. 26,65								- 19. 47. 49,00		λ Draconis SP.
59,52	- 24. 31. 46,66				26,37				13. 14. 55,25	+ 21,55	γ Cephei R.
	- 24. 31. 44,88								13. 14. 57,03		γ Cephei.
58,69	- 34. 22. 16,77	29,846	59,8	59,5	39,02				3. 24. 12,49	+ 15,02	δ Ursæ Min. R.
	- 34. 22. 16,50								3. 24. 12,76		δ Ursæ Minoris.
58,05	13. 34. 0,84				13,78				51. 21. 22,90	+ 14,58	α Lyre R.
	13. 33. 59,83								51. 21. 21,89		α Lyre.
	25. 8. 35,96	29,822	59,3	59,0	26,79				62. 56. 11,03	+ 16,29	* <i>AR.</i> 19 <sup>b</sup> . 20 <sup>m</sup> . 6 <sup>s</sup> .
	13. 39. 44,68				16,37				53. 47. 9,33	+ 18,12	Piaz. XIX. 149. <i>sp.</i>
	30. 18. 16,30				33,36				68. 5. 57,94	+ 16,15	Σ 2556.
	5. 16. 30,74	29,818	58,7	57,0	5,29				43. 3. 44,31	+ 21,59	Σ 2611. <i>sp.</i>
	4. 23. 2,49				4,39				42. 10. 15,16	+ 21,81	Σ 2619. <i>sp.</i>
	55. 39. 17,30				1. 23,66				93. 27. 49,24	+ 12,27	Σ 2643.
	11. 57. 54,30				12,15				49. 45. 14,73	+ 21,99	Σ 2666.
	7. 3. 32,73				7,10				44. 50. 48,11	+ 22,48	Σ 2667. <i>nf.</i>
	13. 17. 57,55				13,55				51. 5. 19,38	+ 21,95	Σ 2668.
	33. 11. 52,39	29,762	57,5	55,5	1. 16,54	3,05			91. 0. 14,16		Pallas.
58,73	42. 11. 22,91								79. 59. 23,15	+ 25,40	ζ Pegasi R.
	42. 11. 23,27				51,96				79. 59. 23,51		ζ Pegasi.
58,70	- 34. 22. 16,75	29,610	60,5	59,2	38,74				3. 24. 12,79	+ 15,02	δ Ursæ Min. R.
	- 34. 22. 16,45								3. 24. 13,09		δ Ursæ Minoris.
58,33	13. 34. 0,37				13,68				51. 21. 22,33	+ 14,62	α Lyre R.
	13. 33. 59,93								51. 21. 21,89		α Lyre.
58,47	19. 1. 21,53				19,54				56. 48. 49,35	+ 14,66	β Lyre R.
	19. 1. 21,38								56. 48. 49,20		β Lyre.

Coincidence of Micrometer Wire with fixed Wire = 10",110 at the middle Wire.

One Micrometer Revolution = 20",854.

Correction for Runa = - 4",6.

Adopted Zenith Point = 177°. 48'. 58". 93. From Sept. 21 = 177°. 48'. 58". 55.

Assumed Co-latitude = 37°. 47'. 8". 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Sept. 22	(a) * $\mathcal{R}$ . 19 <sup>h</sup> . 20 <sup>m</sup> . 6 <sup>s</sup> ..	202.55	2.36,5	36,3	33,8	37,3	34,1	38,8					202.57.35,73	G.
	Piazzix XIX.149.sp.	193.45	3.44,0	42,9	41,7	44,7	42,0	46,3			+2	+0,45	193.48.43,48	G.
	$\Sigma$ 2556. ....	208.5	2.14,4	14,1	13,9	15,4	13,9	18,3					208.7.14,65	G.
	$\delta$ Cygni R. M. ....	350.20	2.18,2	19,6	17,5	20,9	18,5	21,2	12,908	-58,36			350.21.20,61	G.
	$\delta$ Cygni. ....	185.15	1.36,1	35,8	34,0	38,3	35,1	39,4					185.16.36,20	G.
	$\beta$ Aquarii R. M. ....	299.20	0.28,8	28,9	25,1	29,3	25,8	30,1	5,881	+1.28,20			299.21.56,12	G.
	$\beta$ Aquarii. ....	236.15	0.60,8	60,1	57,9	60,4	58,0	62,9					236.15.59,87	G.
	$\epsilon$ Pegasi R. M. ....	314.45	0.29,9	31,2	28,0	31,7	29,2	32,9	7,746	+49,30			314.46.19,70	G.
	$\epsilon$ Pegasi. ....	220.50	1.38,0	38,1	35,7	39,3	36,2	40,5					220.51.37,72	G.
	Pallas. ....	231.10	3.50,3	47,7	47,9	49,9	49,4	51,7					231.13.48,90	G.
	A.S.C. 2697. ....	230.10	3.25,8	24,3	23,8	25,1	24,7	29,7					230.13.25,05	G.
	$\eta$ Aquarii. ....	230.55	1.17,1	16,8	13,3	17,0	14,1	18,5					230.56.15,93	G.
Sept. 23	Polaris SP. R. M. ....	37.5	2.21,9	21,3	17,3	22,5	19,9	23,1	9,954	+3,26			37.7.23,91	G.
	Polaris SP. ....	138.30	0.36,1	35,1	31,4	36,2	34,1	37,5					138.30.34,98	G.
	$\beta$ Aquarii R. M. ....	299.20	0.21,3	23,0	18,1	22,9	19,0	24,0	5,571	+1.34,67			299.21.56,00	G.
	$\beta$ Aquarii. ....	236.15	0.60,2	60,3	58,6	60,8	59,8	62,2					236.16.0,17	G.
	Pallas. ....	231.25	1.43,0	42,4	40,3	43,8	42,0	45,8					231.26.42,62	G.
	A.S.C. 2697. ....	230.10	3.25,0	24,0	23,0	24,6	24,9	28,3					230.13.24,45	G.
	$\eta$ Aquarii. ....	230.55	1.16,7	17,0	13,4	16,9	14,3	18,3					230.56.15,90	G.
	$\zeta$ Pegasi R. M. ....	315.35	1.17,9	18,5	15,6	19,9	16,8	20,3	6,320	+1.19,04			315.37.37,01	G.
	$\zeta$ Pegasi. ....	220.0	0.21,1	20,3	18,1	21,8	19,0	22,7					220.0.20,45	G.
Sept. 24	$\delta$ Ursæ Min. R. M. ....	32.10	1.21,1	24,4	20,0	24,4	22,1	26,1	10,423	-6,53			32.11.16,27	G.
	$\delta$ Ursæ Minoris. ....	143.25	1.42,3	43,8	40,7	44,0	41,3	45,1					143.26.42,60	G.
	$\alpha$ Lyræ R. M. ....	344.15	1.38,0	39,2	36,2	41,4	39,3	41,0	14,945	-1.40,83			344.14.58,10	G.
	$\alpha$ Lyræ. ....	191.20	2.59,4	58,0	58,3	59,8	57,2	60,3					191.22.58,37	G.
	$\beta$ Lyræ R. M. ....	338.45	2.59,4	61,0	59,9	62,7	59,6	62,3	11,208	-22,90			338.47.37,45	G.
	$\beta$ Lyræ. ....	196.50	0.20,5	19,9	16,4	21,0	18,2	21,7					196.50.19,57	G.
	(b) $\delta$ Cygni R. ....	350.20	1.20,1	22,8	20,8	23,4	20,3	23,2					350.21.21,57	G.
	$\delta$ Cygni. ....	185.15	1.35,7	35,0	33,9	37,1	34,3	39,0					185.16.35,58	G.
	$\Sigma$ 2606. ....	197.10	0.17,0	15,3	14,1	17,7	13,9	18,4			-1	+0,09	197.10.16,11	G.
	$\Sigma$ 2611. sp. ....	183.5	0.28,0	26,5	26,6	28,9	25,0	30,3					183.5.27,47	G.
	$\Sigma$ 2619. sp. ....	182.10	1.62,2	59,4	60,8	62,4	60,1	64,1					182.12.1,20	G.
	$\Sigma$ 2666. ....	189.45	1.52,7	51,2	52,8	53,8	51,0	55,2					189.46.52,50	G.
	(c) $\Sigma$ 2668. ....	191.5	1.56,8	54,2	55,3	56,3	55,2	58,3					191.6.55,72	G.
	Ceres. ....	234.0	2.50,9	51,5	49,6	50,3	50,3	53,3					234.2.50,55	G.
Sept. 25	Ceres. ....	234.0	2.50,9	51,5	49,6	50,3	50,3	53,3					234.2.50,55	G.
	$\gamma$ Ur.Maj.SP. R.M. ....	70.55	3.14,1	17,0	10,4	14,6	13,8	16,7	9,109	+21,00			70.58.35,30	G.
	$\gamma$ Ursæ Maj. SP. ....	104.35	4.21,7	21,9	18,8	22,6	22,0	24,0					104.39.21,67	G.
	$\alpha$ Androm. R. M. ....	333.45	4.22,0	22,3	19,9	23,5	24,0	25,0	9,030	+22,65			333.49.45,42	G.
Sept. 30	$\alpha$ Andromedæ. ....	201.45	3.11,4	10,0	9,2	10,0	10,8	12,1					201.48.10,45	G.
	$\Sigma$ 2702. sp. ....	195.20	3.48,5	46,1	46,1	48,0	47,3	49,1					195.23.47,37	G.
	$\Sigma$ 2708. ....	191.55	0.56,1	54,3	54,1	57,9	56,3	57,3					191.55.55,97	G.
	$\Sigma$ 2725. ....	214.40	1.5,8	2,9	3,4	5,1	4,2	5,9					214.41.4,50	G.
	(d) $\eta$ Cephei R. M. ....	6.50	1.9,8	9,9	9,7	12,9	11,1	13,3	14,110	-1.23,13	+1 $\frac{1}{2}$	-0,62	6.49.47,32	G.
	$\eta$ Cephei. ....	168.45	3.9,2	7,2	8,3	10,7	8,9	11,1			+2	+1,09	168.48.10,19	G.
	Pallas. ....	232.50	4.55,2	53,7	54,3	54,2	56,6	56,9					232.54.54,95	G.
	$\zeta$ Pegasi R. M. ....	315.35	2.21,0	20,8	19,3	22,5	22,2	23,8	9,393	+15,08			315.37.36,58	G.
	$\zeta$ Pegasi. ....	220.0	0.21,4	20,4	18,0	22,0	19,0	23,3					220.0.20,67	G.
	$\alpha$ Ur.Maj.SP. R.M. ....	62.55	1.22,8	24,0	20,4	25,8	23,1	27,5	5,635	+1.33,45			62.57.57,33	G.
	(e) $\alpha$ Ursæ Maj. SP. ....	112.35	4.60,0	59,3	58,4	62,0	57,8	61,4					112.39.59,82	G.
	$\gamma$ Cephei R. M. ....	22.20	0.30,8	31,8	28,3	33,4	29,8	34,2	9,200	+19,11			22.20.50,48	G.
	$\gamma$ Cephei. ....	153.15	2.9,7	6,9	8,8	9,0	7,3	11,3					153.17.8,75	G.
	Ceres. ....	234.25	1.2,8	0,0	0,0	0,8	1,1	3,8					234.26.1,38	G.
	$\alpha$ Arietis R. M. ....	328.15	2.30,8	30,1	28,3	30,6	30,3	32,9	4,278	+2.1,75			328.19.32,15	G.
	$\alpha$ Arietis. ....	207.15	3.26,8	24,0	24,1	23,7	27,0	27,2					207.18.25,33	G.
	Vesta. ....	227.50	1.16,4	15,5	14,2	16,0	14,1	18,0					227.51.15,65	G.

Runs taken Sept. 30, 13 $\frac{1}{2}$ <sup>h</sup>. (Temp. 50°), and Oct. 1, 23<sup>h</sup>. (Temp. 57°.)  
Coincidence at the middle wire taken Oct. 2, 0 $\frac{1}{2}$ <sup>h</sup>.

- (a) Cloudy and extremely faint.  
(b) Accidentally on the fixed wire.  
(c) After this observation it became cloudy.

- (d) Coincidence of micrometer with fixed wire used for this observation = 10', 124.  
(e) No correction for Runs.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
	25. 8. 37.18 15. 59. 44.93 30. 18. 16.10 7. 27. 37.94 7. 27. 37.63 58.27. 2.43 58.27. 1.32 43. 2. 38.85 43. 2. 39.17 53.24. 50.35 52.24. 26.50 53. 7. 17.38	29,612	58.2	57.3	26.70 16.31 33.24 7.45 56.3 1.32.54 53.19 1.16.77 1.14.03 1.15.96				62.56.12.16 53.47. 9.52 68. 5. 57.62 45.14.53.67 45.14.53.38 96.15.43.25 96.15.42.14 80.50.40.32 80.50.40.64 91.13.12.35 90.12.48.81 90.55.41.62	+16.37 +18.20 +16.23 +20.59 +18.46 +22.38 +23.99 +23.95	* R. 19 <sup>h</sup> . 20 <sup>m</sup> . 6 <sup>s</sup> . Piaz. XIX. 149. <i>sp</i> Σ 2556. δ Cygni R. δ Cygni. β Aquarii R. β Aquarii. ε Pegasi R. ε Pegasi. Pallas. A.S.C. 2697. η Aquarii.
59.45	-39.18.25.36 -39.18.23.57 58.27. 2.55 58.27. 1.62 53.37.44.07 52.24.25.90 53. 7. 17.33 42.11.21.54 42.11.21.90	29,580 29,570	60.3	60.0 54.3 54.2	46.24 1.32.79 1.17.45 1.14.10 1.16.04 31.77				-1.32. 3.32 -1.32. 1.53 96.15.43.62 96.15.42.69 91.26. 6.74 90.12.48.28 90.55.41.67 79.59.21.59 79.59.21.95	+16.24 +18.47 +24.04 +23.99 +25.60	Polaris SP. R. Polaris SP. β Aquarii R. β Aquarii. Pallas. A.S.C. 2697. η Aquarii. ζ Pegasi R. ζ Pegasi.
58.24	-34.22.17.72 -34.22.15.95 13.34. 0.45 13.33.59.82 19. 1.21.10 19. 1.21.02 7.27.36.98 7.27.37.03 19.21.17.56 5.16.28.92 4.23. 2.65 11.57.53.95 13.17.57.17	29,502	58.4	56.4	38.82 13.70 19.58 7.47 20.03 5.26 4.37 12.08 13.48				3.24.11.74 3.24.13.51 51.21.22.43 51.21.21.80 56.48.48.96 56.48.48.88 45.14.52.73 45.14.52.78 57. 8.45.87 43. 3.42.46 42.10.15.30 49.45.14.31 51. 5.18.93	+15.12 +14.70 +14.74 +20.84 +20.06 +22.03 +22.25 +22.43 +22.39	δ Ursæ Min. R. δ Ursæ Minoris. α Lyrae R. α Lyrae. β Lyrae R. β Lyrae. δ Cygni R. δ Cygni. Σ 2606. Σ 2611. <i>sp</i> . Σ 2619. <i>sp</i> . Σ 2666. Σ 2668.
58.49	56.13.52.00 -73. 9.36.75 -73. 9.36.88 23.59.13.13 23.59.11.90	29,450 29,336	58.0	54.9 55.3	1.24.80 3. 4.57 25.17	3.61			94. 2.21.47 -35.25.33.04 -35.25.33.17 61.46.46.58 61.46.45.35		Ceres. γ Urs. Maj. SP. R. γ Ursæ Maj. SP. α Andromeda R. α Andromeda.
58.76	17.34.48.82 14. 6.57.42 36.52. 5.95 -9. 0.48.77 -9. 0.48.36 53. 5.56.40 42.11.21.97 42.11.22.12 -65. 8.58.78 -65. 8.58.73 -24.31.51.93 -24.31.49.80 56.37. 2.83 29.29.26.49 29.29.26.78 50. 2.17.10	29,334 29,344	57.7	55.0 54.8 52.8	17.94 14.24 42.43 8.98 1.21.36 51.52 2. 2.18 26.06 1.26.63 32.36 1. 8.19				55.22.15.04 51.54.19.94 74.39.56.66 28.46.10.55 28.46.10.94 92.54.22.97 79.59.21.77 79.59.21.92 -27.23.52.68 -27.23.52.63 13.14.50.29 13.14.52.42 94.25.34.07 67.17. 7.04 67.17. 7.42 87.50.29.40	+23.50 +24.21 +20.38 +27.23 +26.24 +21.01 +26.07 +25.43	Σ 2702. <i>sp</i> . Σ 2708. Σ 2725. <i>sp</i> . η Cephei R. η Cephei. Pallas. ζ Pegasi R. ζ Pegasi. α Urs. Maj. SP. R. α Ursæ Maj. SP. γ Cephei R. γ Cephei. Ceres. α Arietis R. α Arietis. Vesta.

Coincidence of Micrometer Wire with fixed Wire = 10', 110 at the middle Wire. From Sept. 29 = 10', 116.

One Micrometer Revolution = 20", 854.

Correction for Run = -4", 6. From Sept. 29 = -1", 2, the mean of two results = -0", 7 and -1", 6.

Adopted Zenith Point = 177°. 48'. 58". 55.

Assumed Co-latitude = 37° 47'. 8". 28.



Month and Day.	NAME OF STAR or PLANET.	Poitier.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
		" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "
Oct. 1	Regulus R. M. ...	318.20	1.47,7	47,0	44,7	46,2	46,7	48,0	11,583	-30,59			318.21.16,06	G.
	Regulus.....	217.15	1.43,5	40,9	40,8	42,0	41,7	44,1					217.16.42,10	G.
	$\alpha$ Ursæ Maj. R. M. ...	8.10	2.43,6	43,8	42,5	45,2	45,4	45,9	12,021	-39,72			8.12.4,56	G.
	$\alpha$ Ursæ Majoris...	167.25	0.55,1	54,0	54,6	55,9	55,4	55,4					167.25.55,03	G.
	(a) $\gamma$ Ursæ Maj. R. M. ...	0.10	1.32,9	32,0	31,8	33,7	33,3	34,0	13,077	-1.1,75			0.10.31,13	G.
	$\gamma$ Ursæ Majoris...	175.25	2.28,1	27,5	26,6	29,0	29,7	30,7					175.27.28,50	G.
Oct. 2	(b) Polaris SP. R. M. ...	37.5	2.25,8	26,8	22,2	24,1	26,4	26,5	10,230	-2,38			37.7.22,82	G.
	Polaris SP. ....	138.30	0.39,7	39,0	36,8	38,3	38,8	39,3					138.30.38,63	G.
	(c) Arcturus R. M. ....	325.35	1.24,1	24,2	22,1	23,4	25,5	25,4	7,509	+54,37			325.37.18,44	G.
	Arcturus.....	210.0	0.39,1	39,0	37,1	39,1	39,9	39,1					210.0.38,85	G.
	(d) $\gamma$ Aquilæ R. M. ....	315.45	3.26,2	25,4	24,1	25,2	28,0	27,3	2,529	+2.38,23			315.51.4,13	G.
	$\gamma$ Aquilæ.....	219.45	1.55,1	54,0	54,2	55,1	55,4	55,6					219.46.54,86	G.
	(e) $\beta$ Aquilæ R. M. ....	311.35	2.18,6	19,0	17,4	18,3	19,0	19,9	7,550	+53,52			311.38.12,12	G.
	$\beta$ Aquilæ.....	223.55	4.45,4	43,9	44,4	44,9	46,4	46,8					223.59.45,12	G.
	$\Sigma$ 2610. <i>np.</i> .....	194.50	4.45,4	42,8	44,4	43,8	46,4	45,8			-1	+0,11	194.54.44,69	G.
	$\Sigma$ 2613. <i>np.</i> .....	219.40	1.53,2	53,0	53,0	53,8	53,0	54,0			+2	+0,11	219.41.53,86	G.
	$\Sigma$ 2658.....	177.20	3.13,5	11,0	14,2	12,7	14,0	14,3			-1	+0,20	177.23.13,35	G.
	$\Sigma$ 2666 M.....	189.40	4.20,8	19,7	21,5	20,8	21,9	24,2	2,850	+2.31,53			189.46.52,85	G.
	$\Sigma$ 2667. <i>sp.</i> .....	184.50	2.38,0	37,0	34,5	36,0	37,0	38,6			+1	+0,16	184.52.36,91	G.
	(f) $\Sigma$ 2681.....	177.5	1.61,5	59,6	62,0	61,8	62,6	62,8					177.7.1,63	G.
	$\Sigma$ 2695.....	204.40	4.43,1	39,7	40,7	40,6	42,4	44,0					204.44.41,57	G.
	$\Sigma$ 2702. <i>sp.</i> .....	195.20	3.48,3	45,9	47,8	47,2	47,5	48,8					195.23.47,43	G.
	$\Sigma$ 2708.....	191.55	0.56,6	54,0	55,1	55,8	55,4	56,4					191.55.55,52	G.
	$\Sigma$ 2725. <i>s.</i> M.....	214.40	1.30,9	27,9	28,4	29,0	30,1	31,1	11,216	-22,94			214.41.6,56	G.
	$\gamma$ Delphini. <i>np.</i> ....	214.25	2.28,9	23,8	24,8	24,7	27,3	27,8					214.27.26,12	G.
	$\alpha$ Cephei R. M. ....	7.30	1.24,7	24,8	24,0	24,9	26,3	25,7	10,624	-10,60			7.31.14,42	G.
	$\alpha$ Cephei.....	168.5	1.44,7	42,0	43,4	43,0	44,3	45,1					168.6.43,68	G.
	(g) Ceres.....	234.30	4.59,0	58,0	58,8	58,8	58,4	61,0					234.34.59,00	G.
	Vesta.....	228.0	2.11,1	9,8	9,8	9,8	9,3	11,7					228.2.10,17	G.
Oct. 5	$\Sigma$ 2610. <i>np.</i> M. ....	194.55	1.42,2	40,1	40,8	42,1	41,5	42,9	15,698	-1.56,50	-1	+0,11	194.54.45,06	G.
	$\Sigma$ 2613. <i>np.</i> .....	219.40	1.54,1	53,1	53,7	54,0	56,0	54,7					219.41.54,10	G.
	(h) $\Sigma$ 2618. <i>np.</i> .....	214.55	4.5,9	3,8	5,2	5,3	6,1	6,9					214.59.5,17	G.
	(i) $\Sigma$ 2631.....	209.20	1.60,2	58,2	61,0	60,6	63,1	61,6					209.22.0,60	G.
	(k) $\Sigma$ 2635.....	222.0	1.24,7	22,4	24,1	24,8	24,2	27,1					222.1.24,42	G.
	(k) $\Sigma$ 2658.....	177.20	3.13,7	10,4	13,7	12,5	13,2	13,8			+2	+0,79	177.23.13,39	G.
	$\Sigma$ 2667. <i>sp.</i> .....	184.50	2.37,3	36,1	35,1	35,9	36,1	38,4					184.52.36,25	G.
	(l) $\Sigma$ 2681.....	177.5	1.62,0	59,4	61,7	61,5	62,7	62,3					177.7.1,42	G.
	$\Sigma$ 2695.....	204.40	4.43,0	39,5	41,5	41,1	42,0	45,0					204.44.41,60	G.
	$\Sigma$ 2702. <i>sp.</i> .....	195.20	3.48,0	44,1	48,1	46,0	47,1	48,1					195.23.46,57	G.
	$\Sigma$ 2708.....	191.55	0.55,2	52,1	54,9	54,2	54,1	55,0					191.55.54,17	G.
	$\Sigma$ 2725. <i>s.</i> M.....	214.40	1.26,0	22,8	24,4	24,1	25,2	27,0	11,034	-19,17			214.41.5,61	G.
	(m) $\gamma$ Delphini. <i>np.</i> ...	214.25	2.29,8	26,0	26,7	26,8	28,8	30,0					214.27.27,80	G.
	Piazzi XX. 429.....	180.10	0.31,0	28,2	30,3	31,3	30,5	32,9					180.10.30,65	G.
	$\Sigma$ 2747. <i>sp.</i> .....	192.55	3.46,7	43,2	45,7	45,4	45,9	47,5					192.58.45,40	G.
	$\Sigma$ 2757.....	178.15	0.17,0	14,9	16,9	17,1	16,4	19,4					178.15.16,92	G.
	$\alpha$ Cephei R. M. ....	7.30	1.34,9	36,8	34,0	36,9	37,1	37,2	11,098	-20,50			7.31.15,50	G.
	$\alpha$ Cephei.....	168.5	1.44,0	39,7	42,8	41,8	43,7	44,4					168.6.42,58	G.
	$\beta$ Aquarii R. M. ....	299.20	1.48,4	47,8	47,9	47,8	48,0	49,0	9,787	+6,64	-2	+0,06	299.21.54,68	G.
	$\beta$ Aquarii.....	236.15	0.61,2	59,3	59,8	59,6	60,8	62,4					236.16.0,43	G.
	$\beta$ Cephei R. M. ....	15.25	2.39,7	39,7	39,0	41,0	41,1	41,9	8,855	+26,27			15.28.6,44	G.
	$\beta$ Cephei.....	160.5	4.51,4	48,0	51,4	49,5	52,0	53,0					160.9.50,45	G.
	$\epsilon$ Pegasi R. M. ....	314.40	4.50,7	49,8	51,6	50,3	53,3	53,7	5,877	+1.28,39			314.46.19,52	G.
	(n) $\epsilon$ Pegasi.....	220.50	1.37,8	34,9	35,8	37,3	37,2	38,2					220.51.36,72	G.
	(o) Regulus R. M. ....	318.20	1.22,4	21,1	19,6	21,3	22,8	23,1	10,465	-7,22	+1	-0,04	318.21.14,34	G.
	Regulus.....	217.15	1.45,7	44,3	43,9	43,8	44,9	46,0			+2	+0,14	217.16.44,76	G.
	$\alpha$ Ursæ Maj. R. M. ...	8.10	1.27,3	28,2	26,8	29,3	29,9	29,9	8,405	+35,60	-1	-0,29	8.12.3,74	G.
	$\alpha$ Ursæ Majoris...	167.25	0.57,3	55,8	56,4	57,0	57,4	57,2					167.25.56,77	G.
Oct. 6	(l) $\Sigma$ 2681.....	177.5	1.61,6	58,7	61,7	60,9	61,8	61,4					177.7.0,83	G.

Runs taken Oct. 5, 21<sup>h</sup>. (Temp. 52°.) Coincidence at the middle wire taken Oct. 10, 23<sup>h</sup>.

(a) Faint. (b) Too near the fixed wire. (c) Unsteady. (d) Too much wind. (e) Good. (f) Quadruple.  
The two brightest only were seen, of which *nf* was taken. (g) No correction for Runs. (h) Very faint. (i) Much  
clouded. The observer was doubtful which star was taken. (Probably *sf*. See Oct. 9 and 15). (k) Cloudy.  
(l) Observed as on Oct. 2. (m) The stars are nearly on the same parallel. (n) After this observation it became  
quite cloudy. (o) Unsatisfactory, the mercury being unsteady.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
59,08	39.27.43,04	29,716	52,8	51,4	47,52				77.15.38,84	-9,49	Regulus R.
	39.27.43,00								77.15.38,80		Regulus.
59,80	-10.23.5,46	29,730	54,3	54,2	10,53				27.23.52,29	-21,52	$\alpha$ Ursæ Maj. R.
	-10.23.4,07								27.23.53,68		$\alpha$ Ursæ Majoris.
59,82	-2.21.32,03	29,740	56,0	57,0	2,36				35.25.33,89	-18,89	$\gamma$ Ursæ Maj. R.
	-2.21.30,60								35.25.35,32		$\gamma$ Ursæ Majoris.
60,73	-39.18.23,72	29,736	56,8	57,4	46,72				-1.32.2,16	+19,64	Polaris SP. R.
	-39.18.20,47								-1.31.58,91		Polaris SP.
58,63	32.11.40,66			57,8	35,91				69.59.24,85	-11,98	Arcturus R.
	32.11.39,75								69.59.23,94		Arcturus.
59,48	41.57.54,97	29,748	55,6	54,3	51,66				79.45.54,91	+14,21	$\gamma$ Aquilæ R.
	41.57.55,72								79.45.55,66		$\gamma$ Aquilæ.
58,62	46.10.46,98				59,84				83.58.55,10	+13,32	$\beta$ Aquilæ R.
	46.10.46,02								83.58.54,14		$\beta$ Aquilæ.
	17.5.45,50				17,68				54.53.11,55	+21,25	$\Sigma$ 2610. <i>np.</i>
	41.52.54,26				51,51				79.40.54,05	+15,56	$\Sigma$ 2613. <i>np.</i>
	-0.25.45,75				0,43				37.21.22,10	+24,57	$\Sigma$ 2658.
	11.57.53,75				12,18				49.45.14,21	+23,45	$\Sigma$ 2666 M.
	7.3.37,81				7,12				44.50.53,21	+24,05	$\Sigma$ 2667. <i>np.</i>
	-0.41.57,47				0,70				37.5.10,11	+25,16	$\Sigma$ 2681.
	26.55.42,47			53,7	29,23				64.43.19,98	+21,73	$\Sigma$ 2695.
	17.34.48,33				18,24				55.22.14,85	+23,74	$\Sigma$ 2702. <i>np.</i>
	14.6.56,42				14,48				51.54.19,18	+24,46	$\Sigma$ 2708.
	36.52.7,46				43,15				74.39.58,89	+20,50	$\Sigma$ 2725. <i>s.</i>
	36.38.27,02				42,79				74.26.18,09	+20,54	$\gamma$ Delphini. <i>np.</i>
59,03	-9.42.15,32		54,5	52,2	9,87				28.4.43,09	+28,07	$\alpha$ Cephei R.
	-9.42.15,42								28.4.42,90		$\alpha$ Cephei.
	56.45.59,90	29,756	50,0	47,2	1.28,82	3,69			94.34.33,31		Ceres.
	50.13.11,07			46,3	1.10,10	3,21			88.1.25,24		Vesta.
	17.5.45,96	28,932	54,7	52,2	17,27				54.53.11,51	+21,47	$\Sigma$ 2610. <i>np.</i>
	41.52.55,00				50,32				79.40.53,60	+15,65	$\Sigma$ 2613. <i>np.</i>
	37.10.6,07				42,55				74.57.56,90	+17,19	$\Sigma$ 2618. <i>np.</i>
	31.33.1,50				34,47				69.20.44,25	+18,96	$\Sigma$ 2631.
	44.12.25,32				54,57				82.0.28,17	+15,72	$\Sigma$ 2635.
	-0.25.45,71				0,42				37.21.22,15	+24,94	$\Sigma$ 2658.
	7.3.37,15				6,90				44.50.52,39	+24,39	$\Sigma$ 2667. <i>np.</i>
	-0.41.57,68				0,69				37.5.9,91	+25,57	$\Sigma$ 2681.
	26.55.42,50				28,52				64.43.19,30	+21,97	$\Sigma$ 2695.
	17.34.47,47				17,79				55.22.13,54	+24,06	$\Sigma$ 2702. <i>np.</i>
	14.6.55,07				14,12				51.54.17,47	+24,82	$\Sigma$ 2708.
	36.52.6,51				42,09				74.39.56,88	+20,67	$\Sigma$ 2725. <i>s.</i>
	36.38.28,70				41,75				74.26.18,73	+20,72	$\gamma$ Delphini. <i>np.</i>
	2.21.31,55	28,928	53,7	51,7	2,32				40.8.42,15	+27,37	Piazzi XX. 429.
	15.9.46,30				15,23				52.57.0,81	+26,13	$\Sigma$ 2747. <i>np.</i>
	0.26.17,82				0,43				38.13.26,53	+27,83	$\Sigma$ 2757.
59,04	-9.42.16,40				9,61				28.4.42,27	+28,76	$\alpha$ Cephei R.
	-9.42.16,52								28.4.42,15		$\alpha$ Cephei.
57,56	58.27.4,42				1.31,27				96.15.43,97	+18,45	$\beta$ Aquarii R.
	58.27.1,33								96.15.40,88		$\beta$ Aquarii.
58,45	-17.39.7,34				17,89				20.7.43,05	+29,06	$\beta$ Cephei R.
	-17.39.8,65								20.7.41,74		$\beta$ Cephei.
58,12	43.2.39,58				52,45				80.50.40,31	+23,21	$\epsilon$ Pegasi R.
	43.2.37,62								80.50.38,35		$\epsilon$ Pegasi.
59,55	39.27.44,76	28,768	53,4		45,98				77.15.39,02	-10,01	Regulus R.
	39.27.45,06								77.15.39,92		Regulus.
60,26	-10.23.4,64	28,762	53,7	53,0	10,22				27.23.53,42	-22,88	$\alpha$ Ursæ Maj. R.
	-10.23.2,33								27.23.55,73		$\alpha$ Ursæ Majoris.
	-0.41.58,27	28,808	53,0	51,4	0,68				37.5.9,33	+25,69	$\Sigma$ 2681.

Coincidence of Micrometer Wire with fixed Wire = 10', 116 at the middle wire. From Oct. 5 = 10', 105, 10', 112, 10', 113, 10', 119, and 10', 125 at the five wires.

One Micrometer Revolution = 20", 854.

Correction for Run = -1", 2. From Oct. 5 = -2", 7.

Adopted Zenith Point = 177°. 48'. 50", 55. From Oct. 1 = 177°. 48'. 50", 10

Assumed Co-latitude = 37°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.			
			A	B	C	D	E	F									
			"	"	"	"	"	"									
Oct. 6	$\Sigma$ 2695.....	204.40	4.43,3	40,3	41,3	41,8	43,3	45,0	9,809	+ 6,39			204.44.42,08	G.			
	$\alpha$ Cygni R. M. ....	350.15	4.27,0	27,2	28,3	28,0	28,3	29,9					350.19.34,11	G.			
	$\alpha$ Cygni.....	185.15	3.22,9	21,1	21,6	22,5	22,8	24,9					185.18.22,33	G.			
	$\gamma$ Delphini. <i>np.</i> ...	214.25	2.29,0	26,3	26,0	25,5	27,4	28,3					214.27.26,87	G.			
	Piazzi XX. 429... ..	180.10	0.31,2	28,9	31,0	31,9	30,8	33,0					180.10.31,08	G.			
	$\Sigma$ 2747. <i>sp.</i> .....	192.55	3.47,0	43,2	46,2	45,8	46,1	47,7	7,780	+ 48,70			192.58.45,67	G.			
	$\Sigma$ 2757.....	178.15	0.16,7	14,9	17,4	16,8	16,1	18,9					178.15.16,78	G.			
	$\alpha$ Cephei R. M. ....	7.30	0.25,8	26,0	25,0	27,0	27,0	27,1					7.31.14,98	G.			
	$\alpha$ Cephei.....	168.5	1.43,3	41,0	42,3	41,9	43,8	44,0					168.6.42,57	G.			
	A.S.C. 2697.....	230.10	3.26,0	23,0	24,9	23,9	25,2	28,5					230.13.24,95	G.			
	$\eta$ Aquarii.....	230.55	1.16,9	15,0	15,1	15,5	15,9	17,6	12,829	- 56,60			230.56.15,88	G.			
	Ceres.....	234.50	2.16,4	12,2	14,5	12,4	13,0	16,0					234.52.13,88	G.			
	$\alpha$ Draco. SP. R. M. ...	60.25	2.12,6	13,3	12,0	13,8	12,8	16,1					60.26.16,63	G.			
	$\alpha$ Draconis SP. ....	115.10	1.44,8	43,1	42,0	43,1	39,9	44,9					115.11.42,82	G.			
	Vesta.....	228.20	4.10,2	8,0	8,9	8,2	7,5	10,7					228.24.8,55	G.			
	$\alpha$ Ursæ Maj. R. M. ...	8.10	2.20,7	21,0	20,6	22,1	22,9	22,7	11,040	- 19,29			8.12.2,18	G.			
	$\alpha$ Ursæ Majoris...	167.25	0.56,7	56,1	56,9	56,3	57,2	56,2					167.25.56,48	G.			
	Polaris SP. R. M. ...	37.5	2.22,0	23,0	19,6	21,0	22,5	21,9					37.7.20,03	G.			
	Polaris SP. ....	138.30	0.39,2	39,3	37,0	38,9	41,0	39,4					138.30.39,15	G.			
Oct. 7	Piazzi XX. 429... ..	180.10	0.28,1	29,8	28,2	29,7	29,0	30,1	7,560	+ 53,28	+4	+ 2,85	180.10.31,95	G.			
	$\Sigma$ 2757.....	178.15	0.16,0	18,8	16,9	17,6	17,7	18,9					178.15.17,62	G.			
	$\alpha$ Cephei R. M. ....	7.30	0.21,9	24,1	21,1	22,8	23,1	23,4					7.31.15,98	G.			
	$\alpha$ Cephei.....	168.5	1.42,7	42,7	41,0	41,1	44,0	42,4					168.6.42,17	G.			
	$\beta$ Aquarii R. M. ....	299.20	1.14,7	16,9	13,7	14,4	14,8	15,6					299.21.55,98	G.			
	$\beta$ Aquarii.....	236.15	0.60,3	61,0	59,8	59,7	61,2	61,6	18,020	- 2.44,85			236.16.0,52	G.			
	$\beta$ Cephei R. M. ....	15.30	0.51,5	54,0	52,9	54,2	53,5	53,1					15.28.8,27	G.			
	(a) $\beta$ Cephei.....	160.5	4.50,6	51,6	50,0	50,5	52,0	52,1					160.9.51,13	G.			
	Piazzi XXI. 248... ..	173.15	0.6,0	6,0	5,9	6,3	5,9	6,7					173.15.6,12	G.			
	Piazzi XXI. 256 M. ...	173.15	0.6,0	6,0	5,9	6,3	5,9	6,7					25,633	- 5.23,62			173.9.42,50
Oct. 9	$\beta$ Aquilæ R. M. ....	311.35	0.12,8	14,8	11,8	13,1	13,3	13,8	1,487	+ 2.59,93			311.38.13,18				G.
	(b) $\beta$ Aquilæ.....	223.55	4.44,0	44,0	42,0	43,0	43,8	45,1					223.59.43,68				G.
	$\Sigma$ 2610. <i>np.</i> M. ....	194.55	1.31,8	31,3	31,2	32,0	31,8	33,1					194.54.44,91				G.
	$\Sigma$ 2613. <i>np.</i> .....	219.40	1.53,0	54,3	52,9	52,6	54,3	53,7					219.41.53,30				G.
	$\Sigma$ 2631. <i>sf.</i> .....	209.20	1.59,2	59,5	60,0	58,8	62,8	61,0	15,237	- 1.46,82			209.22.0,03	G.			
	$\Sigma$ 2635.....	222.0	1.22,9	23,8	21,2	22,7	24,2	25,0					222.1.23,18	G.			
	(a) $\Sigma$ 2651.....	214.15	4.54,0	53,0	52,1	51,3	53,1	52,2					214.19.52,62	G.			
	$\Sigma$ 2658.....	177.20	3.12,7	11,4	13,5	12,1	13,1	14,1					177.23.12,53	G.			
	$\alpha$ Delphini R. M. ...	320.55	3.19,0	21,3	19,3	19,3	20,0	21,7					320.58.29,43	G.			
	$\alpha$ Delphini.....	214.35	4.28,0	26,8	26,9	24,7	27,8	28,7	9,653	+ 9,63			214.39.26,75	G.			
	$\Sigma$ 2720. <i>n.</i> .....	213.35	3.16,0	15,0	15,5	13,0	18,1	16,7					213.38.15,42	G.			
	(c) $\Sigma$ 2723.....	218.15	1.17,1	16,8	16,3	16,0	17,4	19,1					218.16.17,03	G.			
	Oct. 10	$\gamma$ Ursæ Maj. R. M. ...	0.10	1.17,1	17,8	18,0	19,3	19,1					19,4	12,544	- 50,66	+2	+ 0,85
		$\gamma$ Ursæ Majoris...	175.25	2.29,3	27,8	28,9	28,4	30,7	32,0	175.27.30,18			G.				
		Polaris SP. R. M. ...	37.5	2.24,0	25,3	21,7	24,0	26,1	26,0	37.7.16,74			G.				
		Polaris SP. ....	138.30	0.41,3	41,8	39,2	41,8	41,9	42,8	138.30.41,42			G.				
Oct. 11		$\Sigma$ 2720. <i>n.</i> .....	213.35	3.14,9	15,5	14,0	12,6	17,9	15,0	10,620	- 10,53			213.38.14,75	G.		
	(d) $\Sigma$ 2723.....	218.15	1.16,3	17,8	15,4	16,1	17,6	18,1	218.16.16,93					G.			
	$\Sigma$ 2747. <i>nf.</i> .....	192.55	3.44,0	42,2	42,7	42,8	44,0	45,4	192.58.43,25					G.			
	$\alpha$ Cephei R. M. ....	7.30	1.26,0	28,0	25,1	26,9	27,8	28,5	7.31.16,42					G.			
	$\alpha$ Cephei.....	168.5	1.42,4	41,0	40,9	40,2	42,7	43,7	168.6.41,70					G.			
	$\beta$ Cephei R. M. ....	15.25	1.43,0	45,5	42,8	44,9	45,2	45,9	6,089	+ 1.23,97				15.28.8,40	G.		
	(a) $\beta$ Cephei.....	160.5	4.49,2	48,7	49,0	48,4	49,3	50,7						160.9.49,22	G.		
	$\Sigma$ 2813. <i>p.</i> .....	173.15	0.48,8	46,9	47,9	48,2	48,3	48,3						173.15.48,02	G.		
	Piazzi XXI. 248 M. ...	173.15	0.48,8	46,9	47,9	48,2	48,3	48,3						173.15.5,70	G.		
	Piazzi XXI. 256 M. ...	173.15	0.48,8	46,9	47,9	48,2	48,3	48,3	27,665	- 6.5,99				173.9.42,03	G.		
	$\nu$ U. Maj. SP. R. M. ...	65.50	0.10,4	12,8	10,0	12,6	11,4	13,5						65.47.12,95	G.		
	$\nu$ Ursæ Majoris SP. ...	109.50	0.44,1	45,0	41,4	44,1	43,0	45,0						109.50.42,69	G.		
														18,690	- 2.58,82		

Runs taken Oct. 13, 1<sup>h</sup>. (Temp. 51°,5).

(a) No correction for Runs.

(b) The preceding divisions bisected: correction applied for Runs = + 0",2.

(c) Cloudy all the evening. After this observation the sky was densely clouded.

(d) Cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	inch.	"	"	" "	" "	"	" "	" " "	"	"
58,22	26.55.42,98	28,808	53,0	51,4	28,45				64.43.19,71	+22,04	Σ 2695.
	7.29.24,99				7,37				45.16.40,64	+25,95	α Cygni R.
	7.29.23,23				41,64				45.16.38,88	+20,76	α Cygni.
	36.38.27,77				2,30				74.26.17,69	+27,53	γ Delphini. <i>np.</i>
	2.21.31,98				15,18				40.8.42,56	+26,24	Piazz X. 429.
58,78	15.9.46,57	28,840	50,8	49,0	0,43				52.57.10,03	+27,77	Σ 2747. <i>sp.</i>
	0.26.17,68				9,58				38.13.26,39	+28,99	Σ 2757.
	-9.42.15,88				1.13,05				28.4.42,82	+24,36	α Cephei R.
	-9.42.16,53				1.14,96				28.4.42,17	+24,24	α Cephei.
	52.24.25,85				1.27,37				90.12.47,18		A.S.C. 2697.
59,73	53.7.16,78	28,862	48,4	45,7	3,72				90.55.40,02		η Aquarii.
	57.3.14,78				1.8,97				94.51.46,71	-12,99	Ceres.
	-62.37.17,53				1.49,16				-24.51.58,41		α Draco. SP. R.
	-62.37.16,28				4,27				-24.51.57,16		α Draconis SP.
	50.55.9,45				10,31				88.23.22,43	-23,22	Vesta.
59,33	-10.23.3,08	28,940	52,2	51,6	45,68				27.23.54,89	+21,14	α Ursæ Maj. R.
	-10.23.2,62				2,33				27.23.55,35		α Ursæ Maj.
	-39.18.20,93				0,43				-1.31.58,33		Polaris SP. R.
	-39.18.19,95				9,65				-1.31.57,35		Polaris SP.
	2.21.32,85				1.31,66				40.8.43,46	+27,69	Piazz X. 429.
59,08	0.26.18,52	29,012	52,6	51,0	17,96				38.13.27,23	+28,14	Σ 2757.
	-9.42.16,88				4,51				28.4.41,75	+29,22	α Cephei R.
	-9.42.16,93				4,60				28.4.41,70	+18,43	α Cephei.
	58.27.3,12				43,44				96.15.43,06		β Aquarii R.
	58.27.1,42				41,85				96.15.41,36	+29,58	β Aquarii.
59,70	-17.39.9,17	29,774	51,6	50,3	49,43				20.7.41,15	+20,31	β Cephei R.
	-17.39.7,97				1,82				20.7.42,35	+29,83	β Cephei.
	-4.33.52,98				2,35				33.13.10,79	+29,88	Piazz XXI. 248.
	-4.39.16,60				17,84				33.7.47,08		Piazz XXI. 256.
	46.10.45,92				51,98				83.58.54,58	+13,43	β Aquilæ R.
58,43	46.10.44,58	29,774	51,6	50,3	35,61				83.58.58,24	+21,69	β Aquilæ.
	17.3.45,81				56,37				54.53.11,93	+15,71	Σ 2610. <i>np.</i>
	41.52.54,20				42,93				79.40.54,46	+19,13	Σ 2613. <i>np.</i>
	31.33.0,93				0,43				69.20.44,82	+15,79	Σ 2631. <i>sf.</i>
	44.12.24,08				43,44				82.0.28,73	+18,31	Σ 2635.
58,09	36.30.53,52	29,462	51,3	52,4	41,24				74.18.44,73	+25,35	Σ 2651.
	-0.25.46,57				48,71				37.21.21,28	+20,31	Σ 2658.
	36.50.29,67				15,49				74.38.21,39	+20,93	α Delphini R.
	36.50.27,65				9,78				74.38.19,37	+20,93	α Delphini.
	35.49.16,32				18,20				73.37.6,45	+19,80	Σ 2720. <i>n.</i>
58,95	40.27.17,93	29,566	55,0	55,0	2,35				78.15.15,64		Σ 2723.
	-2.21.28,61				46,63				35.25.37,32	-21,93	γ Ursæ Maj. R.
	-2.21.28,92				46,63				35.25.37,01	+23,04	γ Ursæ Majoris.
	-39.18.17,64				41,24				-1.31.55,99		Polaris SP. R.
	-39.18.17,68				48,71				-1.31.56,03		Polaris SP.
59,06	33.49.15,65	29,462	51,3	52,4	41,24				73.37.5,17	+21,01	Σ 2720. <i>n.</i>
	40.27.17,83				48,71				78.15.14,82	+19,86	Σ 2723.
	15.9.44,15				15,49				52.57.7,92	+26,81	Σ 2747. <i>sf.</i>
	-9.42.17,32				9,78				28.4.41,18	+29,96	α Cephei R.
	-9.42.17,40				18,20				28.4.41,10	+30,44	α Cephei.
58,31	-17.39.9,30	29,442	53,5	51,8	4,56				20.7.40,78	+30,54	β Cephei R.
	-17.39.9,88				4,57				20.7.40,20	+30,64	β Cephei.
	-4.33.11,08				4,56				33.13.52,64	+30,70	Σ 2813. <i>p.</i>
	-4.33.53,40				4,56				33.13.10,31		Piazz XXI. 248.
	-4.39.17,07				2.20,34				33.7.46,55	-23,17	Piazz XXI. 256.
57,32	-67.58.13,85	29,436	53,6	51,7					-30.13.25,91		γ U. Maj. SP. R.
	-67.38.16,41								-30.13.28,47		γ Ursæ Maj. SP.

Coincidence of Micrometer Wire with fixed Wire = 10', 115 at the middle wire.

One Micrometer Revolution = 20', 854.

Correction for Run = -2", 7. From Oct. 10 = -2", 1.

Adopted Zenith Point = 177°. 48'. 59", 10.

Assumed Co-latitude = 37°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.  " "	Observer.		
			A	B	C	D	E	F								
			" "	" "	" "	" "	" "	" "								
Oct. 11	(a) $\alpha$ Ursæ Maj. R. M.	8. 10	1. 23,7	24,5	24,0	25,1	25,5	27,0	8,432	+ 35,09			8. 11. 59,96	G.		
	$\alpha$ Ursæ Majoris...	167. 25	0. 57,0	56,9	57,0	57,3	58,7	58,0					167. 25. 57,42	G.		
Oct. 12	(b) $\Sigma$ 2618. <i>np.</i> .....	214. 55	4. 4,4	4,3	3,7	2,0	4,4	4,7	8,339	+ 37,04			214. 59. 3,63	G.		
	Ceres .....	235. 15	0. 29,2	28,9	26,8	27,2	28,2	31,4					235. 15. 28,58	G.		
	Vesta .....	228. 55	1. 19,8	19,2	18,5	17,8	19,0	22,6					228. 56. 19,40	G.		
	(b) $\alpha$ Ursæ Maj. R. M.	8. 10	1. 22,4	22,7	22,0	23,2	22,9	24,3					8. 11. 59,86	G.		
	$\alpha$ Ursæ Majoris...	167. 25	0. 58,2	57,1	58,8	58,0	58,4	59,2					167. 25. 58,22	G.		
Oct. 15	(c) $\gamma$ Aquilæ R. M. ....	315. 45	4. 14,0	15,9	13,0	12,7	15,7	15,7	4,881	+ 1. 49,15	+2	- 0,11	315. 51. 3,33	G.		
	$\gamma$ Aquilæ .....	219. 45	1. 54,3	56,0	52,7	54,3	54,3	55,1	219. 46. 54,30				G.			
	$\beta$ Aquilæ R. M. ....	311. 35	2. 17,1	18,8	15,8	16,8	17,8	18,2	7,460	+ 55,36			311. 38. 12,59	G.		
	$\beta$ Aquilæ .....	223. 55	4. 44,9	46,0	44,4	44,8	46,9	47,7	223. 59. 45,42				G.			
	$\Sigma$ 2618. <i>np.</i> .....	214. 55	4. 4,1	4,2	3,5	2,3	4,8	5,3	214. 59. 3,72	G.						
	$\Sigma$ 2631. <i>sf.</i> .....	209. 20	1. 58,9	60,1	59,0	58,8	60,8	60,3	209. 21. 59,50	G.						
	$\Sigma$ 2635. ....	222. 0	1. 22,9	24,9	21,2	23,4	23,7	26,0	222. 1. 23,58	G.						
	(d) $\Sigma$ 2651. ....	214. 15	4. 53,5	53,8	51,2	51,8	52,5	52,1	214. 19. 52,48	G.						
	(e) Vesta .....	229. 10	1. 44,9	44,8	43,9	42,8	43,6	46,4	229. 11. 44,16	G.						
	Oct. 16	A.S.C. 2697 .....	230. 10	3. 24,0	24,3	22,4	23,0	26,1	26,8	6,523			+ 1. 14,91	- 2. 6,35	230. 13. 24,17	G.
		$\eta$ Aquarii .....	230. 55	1. 15,2	15,9	13,4	15,4	15,5	16,0						230. 56. 15,13	G.
		$\zeta$ Pegasi R. M. ....	315. 35	1. 21,7	23,4	20,8	21,9	22,8	23,9						315. 37. 37,23	G.
		$\zeta$ Pegasi .....	220. 0	0. 19,0	20,9	16,7	18,7	20,0	20,4						220. 0. 19,27	G.
$\alpha$ Pegasi R. M. ....		320. 0	0. 31,0	32,1	29,6	30,4	30,4	32,1	319. 58. 24,55		G.					
$\alpha$ Pegasi .....		215. 35	4. 33,4	33,2	32,1	31,9	34,0	35,1	215. 39. 32,93		G.					
Ceres .....		235. 25	3. 47,4	45,7	45,7	43,6	47,2	48,7	235. 28. 46,10		G.					
Vesta .....		229. 15	1. 43,4	43,3	42,8	41,4	41,8	44,7	229. 16. 42,77		G.					
Oct. 18	(f) $\Sigma$ 2723. ....	218. 15	1. 14,0	15,5	13,4	13,7	15,0	15,9	10,043	+ 1,50	+ 50,36	218. 16. 14,48	G.			
	$\alpha$ Cephei R. M. ....	7. 30	1. 13,9	15,5	15,2	14,2	15,8	15,8				7. 31. 16,47	G.			
	$\alpha$ Cephei .....	168. 5	1. 41,1	40,8	40,0	39,0	42,1	42,2	168. 6. 40,73	G.						
	$\beta$ Cephei R. M. ....	15. 25	2. 15,7	18,5	17,9	17,3	18,5	18,2	15. 28. 7,88	G.						
	(d) $\beta$ Cephei .....	160. 5	4. 48,0	49,4	48,0	47,8	49,4	49,9	160. 9. 48,75	G.						
	(g) $\Sigma$ 2813. <i>p.</i> .....	173. 15	0. 46,0	44,8	46,1	44,3	44,8	46,3	173. 15. 45,33	G.						
	Piazzi XXI. 248. M.	173. 15	0. 46,0	44,8	46,1	44,3	44,8	46,3	173. 15. 3,75	G.						
	Piazzi XXI. 256. M.	173. 15	0. 46,0	44,8	46,1	44,3	44,8	46,3	173. 9. 40,21	G.						
	$\mu$ Cygni .....	201. 55	4. 15,0	14,9	14,3	11,4	13,4	15,4	201. 59. 13,73	G.						
Oct. 19	$\alpha$ Lyræ R. M. ....	344. 15	0. 19,9	20,8	20,9	20,7	22,3	22,4	11,252	- 23,72	- 42,85	344. 14. 57,43	G.			
	$\alpha$ Lyræ .....	191. 20	2. 59,0	57,8	60,2	57,7	59,0	59,5	191. 22. 58,63			G.				
	$\beta$ Lyræ R. M. ....	338. 45	3. 20,0	20,0	20,4	20,2	21,8	22,4	12,170	- 42,85		338. 47. 37,70	G.			
	$\beta$ Lyræ .....	196. 50	0. 19,9	18,4	18,8	19,4	19,4	17,8	196. 50. 18,93			G.				
	(h) $\Sigma$ 2720. ....	213. 35	3. 18,3	16,0	18,0	14,6	19,0	17,8	2,929	+ 2. 29,87		213. 38. 17,03	G.			
	$\Sigma$ 2723. ....	218. 15	1. 16,0	15,5	16,3	14,9	16,3	17,9				218. 16. 16,05	G.			
	$\Sigma$ 2813 M. ....	173. 10	3. 18,0	17,0	17,9	17,2	16,7	20,8				173. 15. 47,55	G.			
	$\Sigma$ 2815 M. ....	173. 10	3. 18,0	17,0	17,9	17,2	16,7	20,8				173. 10. 56,27	G.			
	Piazzi XXI. 256. M.	173. 10	3. 18,0	17,0	17,9	17,2	16,7	20,8				173. 9. 40,04	G.			
	$\mu$ Cygni .....	201. 55	4. 17,8	15,9	18,0	13,4	16,9	17,3				201. 59. 16,22	G.			
	(i) $\alpha$ Pegasi R. M. ....	319. 55	4. 16,5	16,6	17,0	15,0	16,8	18,3	12,544	- 50,66		319. 58. 25,71	G.			
	$\alpha$ Pegasi .....	215. 35	4. 31,6	30,0	32,0	30,0	31,9	33,9	215. 39. 31,22			G.				
	$\lambda$ Draco. SP. R. M.	55. 15	4. 10,5	12,2	10,5	10,6	11,8	13,7	0,330	+ 3. 24,06		55. 22. 35,29	G.			
	$\lambda$ Draconis SP. ....	120. 15	0. 23,8	24,2	22,0	22,2	21,7	25,0	120. 15. 23,13			G.				
	Ceres .....	235. 35	2. 19,3	18,0	18,7	15,9	18,1	20,9	10,505	- 8,14		235. 37. 18,30	G.			
	Vesta .....	229. 30	1. 6,0	4,7	5,8	3,8	4,2	7,2				229. 31. 5,20	G.			
	Polaris SP. R. M.	37. 5	2. 20,2	21,5	18,7	19,0	21,2	21,4				37. 7. 11,96	G.			
	Polaris SP. ....	138. 30	0. 45,8	46,2	46,0	44,4	47,8	46,7				138. 30. 46,10	G.			
Oct. 20	$\alpha$ Lyræ R. M. ....	344. 15	0. 24,7	25,6	24,2	25,5	26,9	26,8	11,485	- 28,57	344. 14. 57,01	G.				
	$\alpha$ Lyræ .....	191. 20	2. 59,4	57,9	59,7	57,2	59,8	56,9	191. 22. 58,25		G.					
	(d) $\Sigma$ 2651. ....	214. 15	4. 53,9	52,9	53,3	51,2	52,9	53,8	214. 19. 53,00		G.					
	$\Sigma$ 2738. <i>nf.</i> .....	214. 10	1. 14,7	13,2	13,8	12,0	13,0	15,0	214. 11. 13,52		G.					

Runs taken Oct. 18, 8<sup>h</sup>. (Temp. 46°).

(a) Good. (b) Much clouded. (c) Not satisfactory. (d) No correction for Runs. (e) Correction for change of N.P.D. = - 0'', 12. (f) Very cloudy and indistinct. (g) The preceding taken though it is somewhat the smaller. This and the two following observations were made with difficulty on account of clouds. (h) This appears to be the south star: see Oct. 9 and 11. (i) Unsatisfactory on account of wind.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	inch.	"	"	"	"	"	"	" " "	"	"
58,69	- 10. 23. 0,86 - 10. 23. 1,68	29,180	53,0	52,7	10,37				27. 23. 57,05 27. 23. 56,23	- 24,86	$\alpha$ Ursæ Maj. R. $\alpha$ Ursæ Majoris.
	37. 10. 4,53 57. 26. 29,48 51. 7. 20,30	29,376 29,554 29,568	53,0 52,3 52,0	51,5 49,5 48,3	43,27 1. 30,08 1. 11,63				74. 57. 56,08 95. 15. 4,09 88. 55. 35,86	+ 17,26	$\Sigma$ 2618. <i>np.</i> Ceres. Vesta.
59,04	- 10. 23. 0,76 - 10. 23. 0,88	29,804	50,0	49,1	10,67				27. 23. 56,85 27. 23. 56,73	- 25,18	$\alpha$ Ursæ Maj. R. $\alpha$ Ursæ Majoris.
58,82	41. 57. 54,96 41. 57. 56,01	29,622	53,0	51,5	51,74				79. 45. 54,98 79. 45. 56,03	+ 14,26	$\gamma$ Aquilæ R. $\gamma$ Aquilæ.
59,00	46. 10. 45,70 46. 10. 47,13				59,92				83. 58. 53,90 83. 58. 55,33	+ 13,37	$\beta$ Aquilæ R. $\beta$ Aquilæ.
	37. 10. 5,43 31. 33. 1,21 44. 12. 25,29 36. 30. 54,19 51. 22. 45,87				43,63 35,34 55,95 42,60				74. 57. 57,34 69. 20. 44,83 82. 0. 29,52 74. 18. 45,07 89. 11. 2,82	+ 17,29 + 19,25 + 15,80 + 18,42	$\Sigma$ 2618. <i>np.</i> $\Sigma$ 2631. <i>ef</i> $\Sigma$ 2635. $\Sigma$ 2651. Vesta.
	52. 24. 25,88 53. 7. 16,84 42. 11. 21,06 42. 11. 20,98	29,384	52,2	51,4	1. 14,06 1. 15,99				90. 12. 48,22 90. 55. 41,11	+ 24,37 + 24,24	A.S.C. 2697. $\eta$ Aquarii.
58,23					51,74				79. 59. 21,08 79. 59. 21,00	+ 27,12	$\zeta$ Pegasi R. $\zeta$ Pegasi.
58,74	37. 50. 33,74 37. 50. 34,64 37. 39. 47,81 51. 27. 44,48	29,424 29,494	51,8 48,7	50,3 46,8 46,0	44,51 1. 31,17 1. 12,66				75. 38. 26,53 75. 38. 27,43 95. 28. 23,50 89. 16. 1,04	+ 28,04	$\alpha$ Pegasi R. $\alpha$ Pegasi. Ceres. Vesta.
58,60	40. 27. 16,19 - 9. 42. 18,18 - 9. 42. 17,56	29,846 29,838	48,7 48,4	46,0 45,8	49,99 10,04				78. 15. 14,46 28. 4. 40,06 28. 4. 40,68	+ 19,98 + 31,15	$\Sigma$ 2723. $\alpha$ Cephei R. $\alpha$ Cephei.
58,32	- 17. 39. 9,59 - 17. 39. 9,54 - 4. 33. 12,96 - 4. 33. 54,54 - 4. 39. 18,08 24. 10. 15,44				18,67 4,67 4,68 4,78 26,33				20. 7. 40,02 20. 7. 40,07 33. 13. 50,65 33. 13. 9,06 33. 7. 45,42 61. 57. 50,05	+ 31,84 + 31,78 + 31,91 + 31,98 + 28,23	$\beta$ Cephei R. $\beta$ Cephei. $\Sigma$ 2813. <i>p.</i> Piazzi XXI. 248. Piazzi XXI. 256. $\mu$ Cygni.
58,03	13. 34. 0,86 13. 34. 0,34	29,800	50,0	49,3	14,04				51. 21. 23,18 51. 21. 22,66	+ 14,16	$\alpha$ Lyre R. $\alpha$ Lyre.
58,32	19. 1. 20,59 19. 1. 20,64 35. 49. 18,74 40. 27. 17,76 - 4. 33. 10,74 - 4. 38. 22,02 - 4. 39. 18,25 24. 10. 17,93				20,06 42,33 50,00 4,68 4,77 4,78 26,35				56. 48. 48,93 56. 48. 48,93 73. 37. 9,35 78. 15. 16,04 33. 13. 52,86 33. 8. 41,49 33. 7. 45,25 61. 57. 52,56	+ 14,32 + 21,20 + 19,98 + 31,94 + 32,10 + 32,14 + 28,31	$\beta$ Lyre R. $\beta$ Lyre. $\Sigma$ 2720. $\Sigma$ 2723. $\Sigma$ 2813. $\Sigma$ 2815. Piazzi XXI. 256. $\mu$ Cygni.
58,47	37. 50. 32,58 37. 50. 32,95 - 57. 33. 57,00 - 57. 33. 35,16	29,866	44,7	42,9	45,87				75. 38. 26,73 75. 38. 27,08	+ 29,13	$\alpha$ Pegasi R. $\alpha$ Pegasi.
59,21	57. 48. 20,01 51. 42. 6,91 - 39. 18. 13,67 - 39. 18. 12,19		45,7	42,6 42,2	1. 32,71 1. 33,64 1. 14,80				- 19. 48. 1,43 - 19. 47. 59,59 95. 36. 38,17 89. 30. 25,60 - 1. 31. 52,81 - 1. 31. 51,33	- 28,54	$\gamma$ Draco SP. R. $\gamma$ Draconis SP. Ceres. Vesta. Polaris SP. R. Polaris SP.
59,03		29,782	50,0	50,8	47,42						
57,63	13. 34. 1,28 13. 33. 29,96 36. 30. 54,71 36. 22. 15,23	29,634 29,584 29,556	51,5 48,5 48,5	50,4 47,7 47,9	13,93 42,88 42,60				51. 21. 23,49 51. 21. 22,17 74. 18. 45,87 74. 10. 6,11	+ 14,06 + 18,43 + 22,28	$\alpha$ Lyre R. $\alpha$ Lyre. $\Sigma$ 2651. $\Sigma$ 2738. <i>nf.</i>

Coincidence of Micrometer Wire with fixed Wire = 10",115 at the middle wire.

One Micrometer Revolution = 20",854.

Correction for Runs = - 2",1. From Oct. 15 = - 2",3.

Adopted Zenith Point = 177°. 48'. 59". 10. From Oct. 15 = 177°. 48'. 58". 29.

Assumed Co-latitude = 37°. 47'. 8". 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
		" "	" "	" "	" "	" "	" "	" "	r.	" "		" "	" "	
Oct. 20	(a) $\Sigma$ 2750. <i>sf.</i> .....	217.55	0.30	5.4	3.8	3.4	4.9	6.9					217.55.457	G.
	(a) $\Sigma$ 2759. <i>sf.</i> .....	198.10	1.47.8	47.9	47.3	47.3	48.0	49.8					198.11.47.88	G.
	$\Sigma$ 2769. <i>sf.</i> .....	208.10	2.12.4	12.4	12.0	11.8	15.1	14.0					208.12.12.78	G.
	$\alpha$ Cephei R. M. ....	7.30	1.28.9	32.0	30.5	30.3	31.3	32.9	10,761	-13.47			7.31.17.40	G.
	$\alpha$ Cephei .....	168.5	1.39.5	38.2	39.0	38.0	41.3	41.7					168.6.39.48	G.
	$\Sigma$ 2789. <i>np.</i> .....	177.40	2.61.7	60.2	62.8	59.1	61.3	63.4			+3	+1.75	177.43.2.93	G.
	$\beta$ Cephei R. M. ....	15.25	3.18.8	21.3	19.1	20.1	21.3	23.0	10,648	-11.12			15.28.9.23	G.
	$\beta$ Cephei .....	160.5	4.47.4	46.8	48.2	45.0	48.8	50.0					160.9.47.33	G.
	(b) $\Sigma$ 2815. ....	173.10	0.35.9	36.1	35.9	36.1	36.2	39.1					173.10.36.50	G.
	$\mu$ Cygni .....	201.55	4.17.0	16.1	17.2	13.8	16.9	18.2					201.59.16.20	G.
	(c) $\Sigma$ 2834. ....	211.25	1.49.8	49.8	48.5	47.0	50.5	50.1					211.26.49.15	G.
	$\Sigma$ 2840. <i>nf.</i> .....	174.55	3.15.5	13.3	15.0	14.0	15.8	17.9					174.58.15.00	G.
	A.S.C. 2697 M. ....	230.10	3.26.8	26.9	26.5	24.4	29.7	31.5	10,249	-2.80			230.13.24.57	G.
	$\eta$ Aquarii .....	230.55	1.14.0	15.0	13.1	13.1	14.5	16.0					230.56.14.18	G.
Oct. 21	$\alpha$ Lyrae R. M. ....	344.15	0.32.0	33.0	32.9	34.4	36.7	36.5	11,863	-36.45			344.14.57.77	G.
	$\alpha$ Lyrae .....	191.20	2.58.8	57.2	59.5	56.0	59.3	58.9					191.22.58.07	G.
	$\Sigma$ 2738. <i>nf.</i> .....	214.10	1.12.0	11.0	12.8	8.9	12.2	12.8					214.11.11.53	G.
	$\Sigma$ 2750. <i>sf.</i> .....	217.55	0.2.1	2.8	4.0	0.8	2.7	5.0					217.55.2.90	G.
	$\Sigma$ 2759. <i>sf.</i> .....	198.10	1.46.9	44.5	47.1	45.2	46.2	48.7					198.11.46.30	G.
	$\Sigma$ 2769. <i>sf.</i> .....	208.10	2.11.0	10.3	12.8	8.8	13.4	12.4					208.12.11.28	G.
	$\alpha$ Cephei R. M. ....	7.30	1.41.5	44.1	43.8	43.8	43.7	45.4	11,333	-25.40			7.31.18.18	G.
	$\alpha$ Cephei .....	168.5	1.41.6	39.0	41.7	39.3	40.7	42.0					168.6.40.58	G.
	$\Sigma$ 2789. <i>np.</i> .....	177.40	2.61.3	59.7	63.0	58.7	61.8	63.1			+5	+1.75	177.43.2.78	G.
	$\beta$ Cephei R. M. ....	15.25	2.57.3	58.8	59.9	56.1	58.1	61.1	9,627	+10.18			15.28.8.50	G.
	$\beta$ Cephei .....	160.5	4.48.8	46.8	50.7	46.0	48.9	51.4					160.9.48.40	G.
	$\Sigma$ 2815. ....	173.10	0.36.7	34.0	36.8	35.3	35.9	38.9					173.10.36.22	G.
	A.S.C. 2697 .....	230.10	3.20.2	20.1	20.4	17.1	22.1	24.4					230.13.20.47	G.
	$\eta$ Aquarii .....	230.55	1.12.0	12.4	12.9	9.5	12.3	14.9					230.56.12.25	G.
	$\alpha$ Ur. Maj. SP. R. M. ....	62.55	2.13.1	16.7	14.8	15.7	16.3	20.1	8,159	+40.79			62.57.56.74	G.
Oct. 23	(d) $\alpha$ Ursae Maj. SP. ....	112.35	4.60.8	60.2	60.9	59.9	58.3	62.4					112.40.0.42	G.
	(e) Ceres. ....	235.40	2.14.0	12.8	13.8	10.6	14.7	16.3			+2	-0.12	235.42.13.41	G.
	(e) Vesta .....	229.40	0.7.8	7.4	8.3	6.5	7.6	10.0			+2	-0.10	229.40.7.83	G.
	$\Sigma$ 2738. <i>nf.</i> .....	214.10	1.13.2	16.0	13.8	11.6	14.5	15.0					214.11.13.92	G.
	$\Sigma$ 2750. <i>sf.</i> .....	217.55	0.2.4	4.1	3.8	2.6	6.1	5.1					217.55.4.02	G.
	$\Sigma$ 2759. <i>sf.</i> .....	198.10	1.47.1	48.0	46.9	46.8	48.1	48.7					198.11.47.47	G.
	$\Sigma$ 2840. <i>nf.</i> .....	174.55	3.12.9	13.0	14.3	12.9	15.0	16.7					174.58.13.88	G.
	$\Sigma$ 2861. <i>nf.</i> .....	209.55	3.47.1	47.9	47.9	45.3	49.8	49.2					209.58.47.58	G.
	A.S.C. 2697 .....	230.10	3.23.7	24.1	23.7	26.4	26.4	28.9					230.13.24.70	G.
	$\eta$ Aquarii .....	230.55	1.14.4	16.7	14.4	14.9	15.9	17.7					230.56.15.57	G.
	$\zeta$ Pegasi R. M. ....	315.35	1.23.9	26.9	23.8	24.4	26.2	27.8	6,661	+1.12.02			315.37.37.42	G.
	$\zeta$ Pegasi .....	220.0	0.17.7	20.5	17.0	18.0	18.7	21.1					220.0.18.82	G.
	(f) $\alpha$ Ur. Maj. SP. R. M. ....	62.55	2.7.9	11.4	9.0	9.1	11.0	14.0	7,501	+54.51			62.58.4.74	G.
	(d) $\alpha$ Ursae Maj. SP. ....	112.35	4.50.7	52.2	50.8	51.3	51.1	52.8					112.39.51.48	G.
Oct. 25	(g) $\alpha$ Cassiopeiae R. M. ....	1.15	1.20.3	21.1	21.3	21.7	23.3	23.9	9,881	+4.88			1.16.26.71	G.
	$\alpha$ Cassiopeiae .....	174.20	1.29.7	27.2	29.9	27.2	30.9	32.1					174.21.29.38	G.
	(h) Polaris R. M. ....	34.0	4.20.6	22.1	20.2	19.8	22.0	24.8	12,309	-45.76			34.3.35.49	G.
	Polaris. ....	141.30	4.23.0	21.2	23.5	20.4	24.6	25.5					141.34.22.70	G.
	Ceres .....	235.50	0.19.7	19.0	17.9	17.3	20.8	22.8					235.50.19.57	G.
	(i) Vesta .....	229.55	1.46.7	46.0	45.1	43.9	46.5	49.3					229.56.46.12	G.
Nov. 2	Ceres .....	235.55	3.12.2	12.0	12.1	10.2	15.4	15.6					235.58.12.90	G.
	Vesta .....	230.20	2.48.1	48.8	48.3	47.1	51.1	52.0					230.22.49.22	G.
	$\alpha$ Arietis R. M. ....	328.15	2.47.9	49.0	48.3	48.2	50.1	52.1	4,994	+1.46.93			328.19.36.18	G.
	$\alpha$ Arietis .....	207.15	3.18.9	18.0	19.0	15.2	19.7	21.0					207.18.18.62	G.
Nov. 6	$\Sigma$ 2760. <i>nf.</i> .....	196.30	1.6.1	6.1	6.2	4.2	5.5	6.8			+2	+0.40	196.31.6.22	G.
	$\Sigma$ 2769. <i>sf.</i> .....	208.10	2.10.8	11.7	11.0	10.1	13.4	12.0					208.12.11.48	G.
	$\alpha$ Cephei R. M. ....	7.30	1.19.3	20.8	21.0	20.2	21.2	22.4	10,220	-2.07			7.31.18.73	G.
	$\alpha$ Cephei .....	168.5	1.37.1	35.7	36.7	35.2	38.7	38.9					168.6.37.03	G.

Coincidence at the middle wire and Runs taken Nov. 8, 22<sup>h</sup>. (Temp. 47°.)

(a) Faint. (b) Seen double.

(c) Not seen double.

(d) No correction for Runs.

(e) Corrections for change of N.P.D. - 0".06 and - 0".10.

(f) Both observations much clouded.

(g) Doubtful from clouds.

(h) Indistinct.

(i) From this day to Nov. 2 the sky was densely clouded.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N.P.D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
58,44	40. 6. 6,28	29,556	48,5	47,9	48,70				77. 54. 3,26	+ 21,72	Σ 2750. <i>zf.</i>
	20. 22. 49,59				21,50				58. 10. 19,37	+ 26,83	Σ 2759. <i>zf.</i>
	30. 23. 14,49				33,93				68. 10. 56,70	+ 24,80	Σ 2769. <i>zf.</i>
	- 9. 42. 19,11				9,90				28. 4. 39,27	+ 31,41	α Cephei R.
	- 9. 42. 18,81				0,11				28. 4. 39,57	+ 30,88	α Cephei.
	- 0. 5. 55,36				18,42				37. 41. 12,81	+ 32,16	Σ 2789. <i>np.</i>
58,28	- 17. 39. 10,94				4,70				20. 7. 38,92	+ 32,16	β Cephei R.
	- 17. 39. 10,96				25,97				20. 7. 38,90	+ 28,39	β Cephei.
	- 4. 38. 21,79				38,48				33. 8. 41,79	+ 26,73	μ Cygni.
	24. 10. 17,91	29,534	48,6	47,5	2,88				61. 57. 52,16	+ 32,66	Σ 2834.
	33. 37. 50,86				1. 15,01				71. 25. 37,62	+ 24,34	Σ 2840. <i>nf.</i>
	- 2. 50. 43,29	29,506	48,0	47,2	1. 16,97				90. 12. 49,57	+ 24,19	A.S.C. 2697.
57,92	53. 7. 15,89								90. 55. 41,14		η Aquarii.
	13. 54. 0,52	29,988	46,8	45,0	14,26				51. 21. 23,06	+ 13,96	α Lyrae R.
	13. 33. 59,78				43,95				51. 21. 22,32	+ 22,30	α Lyrae.
	36. 22. 13,24	30,024	42,4	40,4	50,24				74. 10. 5,47	+ 21,73	Σ 2738. <i>nf.</i>
	40. 6. 4,61				22,18				77. 54. 3,13	+ 28,43	Σ 2750. <i>zf.</i>
	20. 22. 48,01				35,00				58. 10. 18,47	+ 24,83	Σ 2759. <i>zf.</i>
59,38	30. 23. 12,99				10,21				68. 10. 56,27	+ 31,54	Σ 2769. <i>zf.</i>
	- 9. 42. 19,89				0,11				28. 4. 38,18	+ 31,01	α Cephei R.
	- 9. 42. 17,71				19,00				28. 4. 40,36	+ 32,32	α Cephei.
	- 0. 5. 55,51				4,85				37. 41. 12,66	+ 24,34	Σ 2789. <i>np.</i>
	- 17. 39. 10,21				1. 17,62				20. 7. 39,07	+ 32,33	β Cephei R.
	- 17. 39. 9,89				1. 19,63				20. 7. 39,39	+ 24,18	β Cephei.
58,45	- 4. 38. 22,07				2. 8,56				33. 8. 41,36	+ 24,34	Σ 2815.
	52. 24. 22,18	30,052	41,3	39,5	1. 19,63				90. 12. 48,08	+ 24,34	A.S.C. 2697.
	53. 7. 13,96				39,6				90. 55. 41,89	+ 24,18	η Aquarii.
	- 65. 8. 58,45				2. 8,56				- 27. 23. 58,73	- 27,85	α Ur. Maj. SP. R.
	- 65. 8. 57,87				1. 35,53	3,76			- 27. 23. 58,15		α Ur. Maj. SP. R.
	57. 53. 15,12	30,072	39,9	37,8	1. 16,42	4,40			95. 41. 55,17		Ceres.
58,58	51. 51. 9,54								89. 39. 29,84		Vesta.
	36. 22. 15,63	29,108	48,8	47,7	41,97				74. 10. 5,88	+ 22,31	Σ 2738. <i>nf.</i>
	40. 6. 5,73				47,99				77. 54. 2,00	+ 21,73	Σ 2750. <i>zf.</i>
	20. 22. 49,18				21,19				58. 10. 18,65	+ 26,98	Σ 2759. <i>zf.</i>
	- 2. 50. 44,41	29,076	47,7	46,8	2,84				34. 56. 21,03	+ 33,12	Σ 2840. <i>nf.</i>
	52. 9. 49,29				35,87				69. 57. 33,44	+ 28,06	Σ 2861. <i>nf.</i>
58,12	52. 24. 26,41	29,056	47,6	46,7	1. 13,94				90. 12. 48,63	+ 24,30	A.S.C. 2697.
	53. 7. 17,28				1. 15,88				90. 55. 41,44	+ 24,15	η Aquarii.
	42. 11. 20,87				51,65				79. 59. 20,80	+ 27,35	ζ Pegasi R.
	42. 11. 20,53								79. 59. 20,46	- 28,45	ζ Pegasi.
	- 65. 9. 6,45	29,036	47,7	46,5	2. 2,47				- 27. 24. 0,64		α Ur. Maj. SP. R.
	- 65. 9. 6,81								- 27. 24. 1,00		α Ur. Maj. SP. R.
58,05	- 3. 27. 28,42	29,172	45,5	43,2	3,49				34. 19. 36,37	+ 33,01	α Cassiopeie R.
	- 3. 27. 28,91				42,27				34. 19. 35,88	+ 28,64	α Cassiopeie.
	- 36. 14. 57,20								1. 31. 48,81		Polaris R.
	- 36. 14. 55,59								1. 31. 50,42		Polaris.
	58. 1. 21,28	29,178	45,0	42,7	1. 32,23	3,75			95. 49. 58,04		Ceres.
	52. 7. 47,83				1. 14,13	4,40			89. 56. 5,84		Vesta.
59,10	58. 9. 14,90	30,214	48,0	46,5	1. 35,23	3,69			95. 57. 54,72		Ceres.
	52. 33. 51,22				45,9	4,36			90. 22. 12,59		Vesta.
	29. 29. 21,82				33,58				67. 17. 3,68	+ 29,05	α Arietis R.
	29. 29. 20,62								67. 17. 2,48		α Arietis.
	18. 42. 8,22	30,300	50,3	49,7	20,01				56. 29. 36,51	+ 27,60	Σ 2760. <i>nf.</i>
	30. 23. 13,48				34,65				68. 10. 56,41	+ 24,88	Σ 2769. <i>zf.</i>
57,88	- 9. 42. 20,73				10,11				28. 4. 37,44	+ 33,08	α Cephei R.
	- 9. 42. 20,97								28. 4. 37,20		α Cephei.

Coincidence of Micrometer Wire with fixed Wire = 10",115 at the middle Wire. From Nov. 2 = 10",121.

One Micrometer Revolution = 20",854.

Correction for Run = - 2",3. From Nov. 2 = - 0",2.

Adopted Zenith Point = 177°. 48'. 58". 29. From Nov. 2 = 177°. 48'. 58". 00.

Assumed Co-latitude = 57°. 47'. 8". 28.



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.			Observer.
			A	B	C	D	E	F								
Nov. 6	$\Sigma$ 2789. <i>np.</i> .....	177.40	2.59,8	58,9	61,2	58,0	61,0	61,1								
	$\Sigma$ 2861. ....	209.55	3.45,5	45,1	45,9	43,6	48,3	46,9								
	Polaris R. M. ....	34.5	0.27,0	27,9	26,0	26,0	27,1	29,7	15,329	-1.48,61						
	Polaris. ....	141.30	4.19,0	16,0	18,2	16,0	19,4	19,8								
	Ceres. ....	235.55	2.54,7	54,1	54,3	52,7	56,1	57,0								
	(a) Vesta. ....	230.30	1.47,1	47,1	47,7	45,4	49,1	48,8								
	$\alpha$ Drac. SP. R. M. ....	60.25	1.28,8	31,7	29,3	29,9	33,1	33,9	10,595	-9,88						
	$\alpha$ Draconis SP. ....	115.10	1.34,1	33,9	33,0	33,0	32,4	36,0								
	$\beta$ Ur. Min. SP. R. M. ....	50.45	1.51,8	53,1	51,4	52,0	52,9	54,2	10,310	-3,95						
	$\beta$ Ursæ Minoris SP. ....	124.50	1.6,1	5,9	6,0	5,7	8,0	8,2								
Nov. 8	$\alpha$ Lyræ R. M. ....	344.15	0.31,9	31,0	31,4	32,9	35,2	34,7	11,907	-37,25						
	$\alpha$ Lyræ. ....	191.20	2.59,9	58,2	61,3	58,9	62,8	60,3								
	$\alpha$ Cygni R. M. ....	350.15	3.21,0	22,8	22,9	22,0	23,0	23,4	6,619	+1.13,03						
	$\alpha$ Cygni. ....	185.15	3.19,8	16,7	19,1	17,0	19,9	21,4								
	$\Sigma$ 2760. <i>nf.</i> ....	196.30	1.7,3	4,4	7,2	4,2	5,8	7,7								
	(b)* R. 21 <sup>h</sup> . 43 <sup>m</sup> . 54 <sup>s</sup> . <i>sp. M.</i> ....	211.25	1.49,8	47,5	48,7	46,0	48,8	48,7	3,020	+2.28,41	+3	+0,46				
	$\Sigma$ 2834. ....	211.25	1.49,8	47,5	48,7	46,0	48,8	48,7								
	$\Sigma$ 2840. <i>nf.</i> ....	174.55	3.13,6	10,0	13,7	10,0	13,0	14,9								
	$\Sigma$ 2881. ....	201.10	3.40,0	37,3	38,9	35,8	38,7	40,0								
	33 Pegasi M. ....	209.55	3.24,3	25,0	24,9	23,0	26,9	26,4	11,610	-31,05						
	$\Sigma$ 2902. ....	185.25	3.17,6	16,0	16,8	15,2	17,2	19,1								
	$\zeta$ Pegasi R. M. ....	315.35	1.26,0	28,0	25,2	25,8	27,5	28,7	6,598	+1.13,47						
	$\zeta$ Pegasi. ....	220.0	0.16,2	17,3	15,7	15,1	17,0	17,9								
	$\alpha$ Pegasi R. M. ....	319.55	3.10,1	11,1	11,1	8,8	11,5	12,0	9,342	+16,25						
	$\alpha$ Pegasi. ....	215.35	4.29,1	27,1	28,4	25,2	29,9	30,4								
	(c) Polaris R. M. ....	34.0	4.22,9	23,8	23,8	21,8	23,4	26,0	12,330	-46,07		-0,08				
	(c) Polaris. ....	141.30	4.19,0	17,1	18,8	16,3	19,9	21,1				+0,15				
Nov. 10	$\Sigma$ 2861. ....	209.55	3.46,1	46,3	46,8	44,7	47,9	47,9								
	$\Sigma$ 2881 M. ....	201.10	4.13,6	12,9	13,9	11,4	13,3	14,8	11,721	-33,36						
	$\Sigma$ 2889. ....	204.30	1.54,1	53,1	52,9	52,6	52,7	55,2								
	33 Pegasi M. ....	209.55	3.10,8	12,9	12,4	11,3	14,5	13,9	10,966	-17,61						
	$\Sigma$ 2902. ....	185.25	3.16,7	16,2	16,9	15,8	18,0	19,2								
	$\alpha$ Draconis R. M. ....	10.45	0.46,3	46,5	47,9	46,2	51,1	48,6	16,054	-2.3,52	+2	-1,30				
	$\alpha$ Draconis. ....	164.50	4.11,2	11,8	14,9	11,9	15,5	15,3			+2½	+2,02				
	(d) Arcturus R. M. ....	325.35	2.28,1	27,4	27,0	25,3	30,0	29,7	10,977	-17,85						
	Arcturus. ....	210.0	0.44,8	44,7	44,4	44,7	47,2	45,4			+1	+0,05				
	(e) $\beta$ Ursæ Min. R. M. ....	20.25	0.52,0	51,0	51,0	51,1	52,9	52,6	16,350	-2.9,86	+½	-0,14				
	$\beta$ Ursæ Minoris ..	155.10	4.16,1	15,2	16,8	14,7	17,9	17,8			+1	+0,55				
Nov. 11	$\alpha$ Androm. R. M. ....	333.45	4.7,3	7,5	8,0	6,2	9,3	9,3	8,008	+44,07						
	$\alpha$ Andromedæ. ....	201.45	3.4,2	3,0	4,4	0,7	3,4	5,0								
	$\kappa$ Drac. SP. R. M. ....	54.50	4.24,5	26,2	23,4	24,4	26,8	28,9	7,832	+47,74						
	(f) $\kappa$ Draconis SP. M. ....	120.40	1.54,3	53,2	52,9	52,6	53,2	54,7	7,832	+47,74						
	(d) $\alpha$ Cassiopeiæ R. M. ....	1.15	1.44,4	44,1	45,9	43,9	47,0	45,9	10,792	-13,99						
	$\alpha$ Cassiopeiæ. ....	174.20	1.25,0	22,4	25,0	23,1	25,9	26,9								
	Vesta. ....	230.35	3.42,9	41,2	42,3	40,1	44,6	45,0								
Nov. 12	$\Sigma$ 2881 M. ....	201.10	4.17,1	14,9	18,3	14,2	16,9	18,9	11,900	-37,10						
	$\Sigma$ 2889. ....	204.30	1.52,7	50,1	52,8	48,8	51,3	53,7								
	33 Pegasi M. ....	209.55	3.36,1	35,3	36,8	33,8	37,7	38,1	12,123	-41,75						
	$\Sigma$ 2902. ....	185.25	3.17,4	14,9	18,1	14,1	16,6	20,0								
	$\gamma$ Cephei R. M. ....	22.20	0.30,8	31,7	30,0	30,3	30,7	34,2	8,624	+31,22						
	$\gamma$ Cephei. ....	153.15	1.54,6	53,0	57,6	52,2	54,8	56,2								
	Vesta. ....	230.35	4.32,4	32,7	32,5	30,9	34,0	35,4								
	$\alpha$ Persei R. M. ....	354.55	0.23,1	25,5	24,8	23,9	25,8	27,0	14,416	-1.29,57						
	$\alpha$ Persei. ....	180.40	4.2,9	1,1	4,6	0,0	2,0	2,9								
	(g) $\alpha$ Draconis R. M. ....	10.40	4.5,2	4,1	6,9	4,0	5,4	6,9	11,228	-22,94	+1½	-0,73				
	$\alpha$ Draconis. ....	164.50	4.15,0	12,6	17,4	12,1	16,8	16,3			+2	+1,30				
	(h) $\beta$ Ursæ Min. R. M. ....	20.25	0.17,9	15,4	16,7	14,8	16,8	14,5	14,618	-1.33,74	+½	-0,14				
	$\beta$ Ursæ Minoris. ....	155.10	4.18,5	18,0	18,5	15,8	20,7	20,6			+1	+0,55				

Nov. 8, 21<sup>h</sup>. Molyneux fast on Hardy, 1<sup>m</sup>. 14<sup>s</sup>. 5.Runs taken Nov. 12, 22<sup>h</sup>. (Temp. 44°.)

(a) Much clouded. (b) Extremely faint: bisection uncertain. Adopted coincidence = 10', 136.

(c) Very cloudy. Times of observation by Molyneux, 1<sup>h</sup>. 5<sup>m</sup>. 12<sup>s</sup> and 1<sup>h</sup>. 5<sup>m</sup>. 37<sup>s</sup>.

(d) Clouded.

(f) Unintentionally on the micrometer wire.

(g) Adopted coincidence = 10', 128.

(h) Faint and unsteady. Adopted coincidence = 10', 123.

(e) Coincidence used = 10', 123.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
58,35	- 0 . 5 . 57,24	30,000	50,3	49,7	0,10	3,65	4,32		37 . 41 . 10,94	+ 32,18	Σ 2789. <i>np.</i>
	52 . 9 . 47,87			49,0	37,21				69 . 57 . 33,36	+ 28,44	Σ 2861.
	- 36 . 14 . 40,67			48,5	47,5				1 . 31 . 44,11	+ 32,94	Polaris R.
	- 36 . 14 . 39,97				43,50				1 . 31 . 44,81		Polaris.
	58 . 8 . 56,80				1 . 35,29				95 . 57 . 36,72		Ceres.
57,47	52 . 42 . 49,52				1 . 17,83				90 . 31 . 11,31		Vesta.
	- 62 . 37 . 23,22				1 . 54,16				- 24 . 52 . 9,10	- 24,50	α Drac. SP. R.
	- 62 . 37 . 24,28								- 24 . 52 . 10,16		α Draconis SP.
57,63	- 52 . 57 . 50,60		46,5		1 . 18,70				- 15 . 12 . 1,02	- 19,40	β Ur. Min. SP. R.
	- 52 . 57 . 51,35								- 15 . 12 . 1,77		β Ursæ Minoris.
57,87	13 . 34 . 2,40	30,240	52,7	52,7	14,15				51 . 21 . 24,83	+ 11,58	α Lyrae R.
	13 . 34 . 2,13								51 . 21 . 24,56		α Lyrae.
57,25	7 . 29 . 22,47	30,222	48,3	46,8	7,80				45 . 16 . 38,55	+ 27,55	α Cygni R.
	7 . 29 . 20,97								45 . 16 . 37,05		α Cygni.
	18 . 42 . 8,10				20,08				56 . 29 . 36,46	+ 27,57	Σ 2760. <i>nf.</i>
	33 . 40 . 19,10			47,0	39,64				71 . 28 . 7,02	+ 27,07	* R. 21. 43. 54. <i>sp.</i>
	33 . 37 . 50,25				39,58				71 . 25 . 38,09	+ 27,07	Σ 2834.
58,43	- 2 . 50 . 45,48				2,96				34 . 56 . 19,84	+ 34,86	Σ 2840. <i>nf.</i>
	23 . 24 . 40,43				25,77				61 . 12 . 14,48	+ 31,29	Σ 2881.
	52 . 8 . 56,02				37,40				69 . 56 . 41,70	+ 29,48	33 Pegasi.
	7 . 39 . 18,97				8,00				45 . 26 . 35,25	+ 35,04	Σ 2902.
	42 . 11 . 17,68			45,3	53,88				79 . 59 . 19,84	+ 27,48	ζ Pegasi R.
57,66	42 . 11 . 18,53	30,228	45,7	44,1	46,31				79 . 59 . 20,69		ζ Pegasi.
	37 . 50 . 31,00								75 . 38 . 25,59	+ 29,78	α Pegasi R.
	37 . 50 . 30,32								75 . 38 . 24,91		α Pegasi.
58,13	- 36 . 14 . 39,43		44,3	42,6	43,84				1 . 31 . 45,01	+ 33,64	Polaris R.
	- 36 . 14 . 39,18								1 . 31 . 45,26		Polaris.
	32 . 9 . 48,52	29,982	49,2	50,2	36,73				69 . 57 . 33,33	+ 28,45	Σ 2861.
	23 . 24 . 41,84				25,30				61 . 12 . 15,42	+ 31,52	Σ 2881.
	26 . 42 . 55,38				29,40				64 . 30 . 33,06	+ 30,55	Σ 2889.
	52 . 8 . 56,94				36,71				69 . 56 . 41,93	+ 29,48	33 Pegasi.
	7 . 39 . 19,05				7,85				45 . 26 . 35,18	+ 35,18	Σ 2902.
59,14	- 12 . 54 . 44,93	29,920	50,0	50,5	13,36				24 . 52 . 9,99	- 26,03	α Draconis R.
	- 12 . 54 . 42,16								24 . 52 . 12,26		α Draconis.
57,62	32 . 11 . 48,00				36,68				69 . 59 . 32,96	- 20,58	Arcturus R.
	32 . 11 . 47,23								69 . 59 . 32,19		Arcturus.
59,30	- 22 . 34 . 43,75			51,3	24,19				15 . 12 . 0,34	- 21,14	β Ursæ Min. R.
	- 22 . 34 . 41,15								15 . 12 . 2,94		β Ursæ Minoris.
57,63	23 . 59 . 6,11	29,922	47,0	45,5	26,19				61 . 46 . 40,58	+ 34,36	α Androm. R.
	23 . 59 . 5,37								61 . 46 . 39,84		α Andromedæ.
57,23	- 57 . 6 . 15,32			44,5	1 . 30,96				- 19 . 20 . 38,00	- 34,33	α Drac. SP. R.
	- 57 . 6 . 16,83								- 19 . 20 . 39,51		α Draconis SP.
57,92	- 3 . 27 . 33,16				3,57				34 . 19 . 31,55	+ 37,06	α Cassiopeie R.
	- 3 . 27 . 35,32								34 . 19 . 31,39		α Cassiopeie.
	52 . 49 . 44,58	29,900	45,3	43,1	1 . 17,83	4,25			90 . 38 . 6,44		Vesta.
	23 . 24 . 41,23				25,23				61 . 12 . 14,76	+ 31,34	Σ 2881.
	26 . 42 . 55,27				29,32				64 . 30 . 30,87	+ 30,57	Σ 2889.
	52 . 8 . 56,20				36,61				69 . 56 . 41,09	+ 29,48	33 Pegasi.
	7 . 39 . 18,52				7,83				45 . 26 . 34,63	+ 35,30	Σ 2902.
58,59	- 24 . 52 . 4,24	29,386	42,4	41,1	26,64				13 . 14 . 37,40	+ 39,40	γ Cephei R.
	- 24 . 52 . 3,57								13 . 14 . 38,07		γ Cephei.
	52 . 50 . 34,72			40,3	1 . 16,98				90 . 38 . 55,65		Vesta.
58,79	8 . 55 . 2,82	29,380	42,4	40,0	2,98				40 . 42 . 14,08	+ 23,29	α Persei R.
	2 . 55 . 3,90								40 . 42 . 15,16		α Persei.
58,93	- 12 . 54 . 43,38	29,348	44,2	44,2	13,28				24 . 52 . 11,62	- 26,80	α Draconis R.
	- 12 . 54 . 42,03								24 . 52 . 12,97		α Draconis.
60,63	- 22 . 34 . 43,89			45,6	24,01				15 . 12 . 0,38	- 21,92	β Ursæ Min. R.
	- 22 . 34 . 39,13								15 . 12 . 5,14		β Ursæ Minoris.

Coincidence of Micrometer Wire with fixed Wire = 10', 121 and 10', 131 at middle and 5th wires.

One Micrometer Revolution = 20", 854.

Correction for Run = - 0", 2. From Nov. 10 = - 0", 8.

Adopted Zenith Point = 177°. 48'. 58", 00 From Nov. 12 = 177°. 48'. 58", 25.

Assumed Co-latitude = 37°. 47'. 8", 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.  " "	Microscopes.						Microm. Reading.  r.	Correction to Fixed Wire.  " "	Interval of Obs. from Middle Wire.  "	Correction to Middle Wire.  "	Concluded reading of Circle.  " "	Observer.
			A	B	C	D	E	F						
Nov. 16	(a) Vesta .....	230.40	0.44,1	44,0	43,8	42,6	45,0	46,4					230.40.44,31	G
	(b) Polaris SP. R. M. .	37.5	2.40,9	41,0	40,8	39,3	42,3	43,2	12,020	-39,47			37.7.1,81	G.
	Polaris SP. ....	138.30	0.60,1	58,7	63,3	57,2	60,4	60,0					138.30.59,97	G.
	Arcturus R. M. ....	325.35	2.21,1	20,9	22,7	18,3	21,8	24,0	10,701	-11,97			325.37.9,51	G.
	Arcturus .....	210.0	0.46,1	43,8	49,0	42,9	47,7	47,1					210.0.46,10	G.
Nov. 18	Σ 2760. <i>nf.</i> .....	196.30	1.6,2	6,1	8,9	3,4	7,3	7,4					196.31.7,57	G.
	(c) Σ 2834 .....	211.25	1.49,9	48,2	50,4	44,8	49,3	49,7					211.26.48,73	G.
	α Andromedæ R. M. .	333.45	4.13,1	14,0	15,8	12,3	16,0	17,1	8,268	+38,76			333.49.53,53	G.
	α Andromedæ .....	201.45	2.62,8	61,3	64,8	58,2	62,2	63,8					201.48.2,22	G.
	γ Pegasi R. M. ....	319.50	4.22,6	23,9	24,7	20,1	24,4	26,2	7,284	+59,28			319.55.22,98	G.
	γ Pegasi .....	215.40	2.34,6	33,9	35,2	31,9	35,1	37,0					215.42.34,65	G.
	κ Draco SP. R. M. .	54.55	0.33,1	36,0	32,8	34,3	36,6	38,1	11,028	-18,79			54.55.16,36	G.
	κ Draconis SP. ....	120.40	2.41,0	41,4	42,4	39,0	41,3	43,1					120.42.41,40	G.
	α Cassiopeiæ R. M. .	1.15	2.28,8	30,8	31,4	29,1	32,9	32,3	12,848	-56,75			1.16.34,15	G.
	α Cassiopeiæ .....	174.20	1.22,5	22,0	25,0	20,2	23,7	26,0					174.21.23,25	G.
	Vesta .....	230.40	0.6,0	6,7	7,5	4,4	7,0	8,9					230.40.6,75	G.
	α Draco SP. R. M. .	60.25	0.29,9	34,4	32,2	31,7	34,7	35,9	7,661	+51,43			60.26.24,56	G.
	α Draconis SP. ....	115.10	1.31,9	33,0	32,6	30,2	31,8	34,9					115.11.32,42	G.
Nov. 20	(d) Σ 2834 .....	211.25	1.49,1	50,6	50,2	47,1	51,1	50,6					211.26.49,80	G.
	Σ 2848 .....	224.45	4.13,8	16,1	15,2	13,2	18,4	17,6					224.49.15,77	G.
	Piazzi XXII. 11...	171.30	0.20,6	22,5	23,0	21,1	24,1	24,1					171.30.22,57	G.
	Σ 2882 .....	193.0	3.25,5	26,3	27,0	25,0	28,4	28,4					193.3.26,80	G.
	Σ 2889 .....	204.30	1.52,3	53,8	54,2	50,6	54,7	54,7					204.31.53,40	G.
Nov. 24	(e) α Cygni R. M. ....	350.15	3.19,0	18,9	22,0	18,7	21,7	22,1	6,568	+1.14,22			350.19.34,65	G.
	α Cygni .....	185.15	3.21,0	17,5	21,2	16,9	21,7	22,9					185.18.20,38	G.
	α Cephei R. M. ....	7.25	3.23,9	22,9	26,5	23,5	25,7	27,6	1,829	+2.53,05			7.31.18,10	G.
	α Cephei .....	168.5	1.39,1	35,0	39,8	35,2	39,3	39,3					168.6.37,97	G.
	Σ 2848 .....	224.45	4.13,7	10,2	15,0	9,3	15,0	15,5					224.49.13,17	G.
	Piazzi XXII. 11...	171.30	0.23,8	19,0	24,9	19,8	22,2	24,2					171.30.22,32	G.
	Σ 2882 .....	193.0	3.28,5	24,2	28,7	23,8	27,2	29,8					193.3.27,07	G.
	γ Cephei R. M. ....	22.20	0.33,0	33,7	32,8	31,0	33,7	37,0	8,607	+31,70			22.21.5,23	G.
	γ Cephei .....	153.15	1.54,1	50,8	56,9	50,0	53,8	55,3					153.16.53,50	G.
	γ U. Maj. SP. R. M. .	70.55	2.21,9	20,4	21,4	19,4	21,3	25,5	6,157	+1.23,21			70.58.44,88	G.
	γ Ursæ Majoris SP. .	104.35	4.14,0	11,0	14,6	9,7	13,3	14,1					104.39.12,83	G.
	α Andromedæ R. M. .	333.45	4.11,5	10,4	13,4	10,4	13,2	14,6	8,131	+41,63			333.49.53,93	G.
	α Andromedæ .....	201.45	2.63,8	61,2	65,1	57,8	62,2	63,8					201.48.2,35	G.
	γ Pegasi R. M. ....	319.50	3.18,0	17,3	18,5	15,0	16,8	21,0	4,159	+2.4,46			319.55.22,26	G.
	γ Pegasi .....	215.40	2.35,1	32,4	35,7	31,8	35,7	36,5					215.42.34,57	G.
Nov. 25	Σ 40 .....	194.0	3.34,4	31,0	36,4	29,9	34,4	35,9					194.3.33,70	G.
	α Cassiopeiæ R. M. .	1.15	2.4,0	3,7	6,8	3,5	4,7	6,0	11,593	-30,57			1.16.34,23	G.
	α Cassiopeiæ .....	174.20	1.22,9	19,1	24,0	19,8	22,3	24,7					174.21.22,15	G.
	α Cygni R. M. ....	350.15	3.27,1	27,0	30,6	27,0	30,5	30,5	6,952	+1.6,00			350.19.34,82	G.
	α Cygni .....	185.15	3.20,4	17,0	23,0	17,4	19,5	22,0					185.18.19,92	G.
	(f) * R. 21 <sup>b</sup> . 43 <sup>m</sup> . 54 <sup>s</sup> . sp.	211.25	4.14,7	11,0	16,3	8,7	14,0	15,5					211.29.13,42	G.
	Σ 2848 .....	224.45	4.14,8	11,1	14,8	10,7	15,0	16,3					224.49.13,83	G.
	Piazzi XXII. 11...	171.30	0.23,8	21,0	25,0	21,0	22,4	25,2					171.30.23,07	G.
	Σ 2878 M. ....	222.50	0.26,3	24,0	26,0	22,4	24,9	28,3	14,154	-1.23,89			222.49.1,43	G.
	Σ 2882 .....	193.0	3.28,8	24,2	28,8	23,8	26,5	29,1					193.3.26,90	G.
	37 Pegasi .....	226.20	2.43,6	42,0	45,6	40,4	44,2	45,3					226.22.43,55	G.
	Σ 2916 .....	189.35	1.47,9	44,1	50,9	43,8	47,5	49,0					189.36.47,22	G.
	Piazzi XXII. 219.	235.0	2.65,9	62,1	66,1	58,8	64,5	65,9					235.3.3,92	G.
	Σ 2958 .....	219.0	0.27,2	24,8	27,1	24,0	27,4	30,0					219.0.26,87	G.
	γ Pegasi R. M. ....	319.55	0.31,3	29,6	32,2	28,3	31,5	33,7	10,517	-8,14			319.55.22,96	G.
	γ Pegasi .....	215.40	2.35,1	32,0	36,2	32,0	34,1	36,9					215.42.34,42	G.
	Σ 40 .....	194.0	3.35,0	31,9	37,2	30,8	34,0	36,0					194.3.34,18	G.
	α Cassiopeiæ R. M. .	1.15	2.22,8	22,2	25,2	21,1	26,0	24,7	12,472	-48,90			1.16.34,78	G.
	α Cassiopeiæ .....	174.20	1.23,1	19,4	24,7	19,8	22,5	24,6					174.21.22,37	G.

Coincidence at the middle wire and Runs taken Nov. 23, 22<sup>h</sup>. (Temp. 40°.)

(a) No correction for change of N.P.D.

(b) Unsatisfactory observation.

(c) The star preceding this (see Nov. 8) was too faint to observe.

(d) The faint star observed Nov. 8 preceded this exactly 20°.

(e) Hardly enough day-light for seeing the wires.

(f) No certainty of bisection, the object being extremely faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
-	" . . .	Inch.	"	"	"	"	"	"	"	"	"
60,89	52.51.46,06	29,512	36,8	34,0	1.18,40	4,16			90.40.8,58		Vesta.
	-39.18.3,56	29,626	34,8	30,5					-1.31.44,48	+36,49	Polaris SP. R.
	-39.17.58,28				49,20				-1.31.39,20		Polaris SP.
57,81	32.11.48,74	29,634	34,3	32,7	37,70				69.59.34,72	-22,14	Arcturus R.
	32.11.47,85								69.59.33,83		Arcturus.
57,87	18.42.8,32	29,494	37,7	35,8	20,05				56.29.36,65	+27,13	Σ 2760. <i>nf.</i>
	33.57.50,48	29,510	36,0	34,5	39,52				71.25.38,28	+26,81	Σ 2834.
	23.59.4,72	29,372	34,9	32,0	26,62				61.46.39,62	+34,82	α Andromedæ R.
58,82	23.59.3,97								61.46.38,87		α Andromedæ.
	37.53.35,27				46,55				75.41.30,10	+31,42	γ Pegasi R.
58,88	37.53.36,40								75.41.31,23		γ Pegasi.
	-57.6.18,11				1.32,29				-19.20.42,12	-36,62	α Draco SP. R.
58,70	-57.6.16,85								-19.20.40,86		α Draconis SP.
	-3.27.35,90				3,62				34.19.28,76	+38,50	α Cassiopeie R.
	-3.27.35,00								34.19.29,66		α Cassiopeie.
58,49	52.51.8,50	29,594	34,0	31,3	1.19,03	4,12			90.39.31,69		Vesta.
	-62.37.26,31				1.55,37				-24.52.13,40	-29,08	α Draco SP. R.
	-62.37.25,83								-24.52.12,92		α Draconis SP.
57,52	33.57.51,55	29,092	40,4	42,2	38,33				71.25.38,16	+26,71	Σ 2834.
	47.0.17,52				1.1,75				84.48.27,55	+22,81	Σ 2848.
	-6.18.35,68				6,37				31.28.26,23	+36,91	Piazzi XXII. 11.
	15.14.28,55				15,71				53.1.52,54	+33,36	Σ 2882.
	26.42.55,15				29,01				64.30.32,44	+30,48	Σ 2889.
58,04	7.29.23,60	29,812	42,4	40,6	7,79				45.16.39,67	+26,31	α Cygni R.
	7.29.22,13								45.16.38,20		α Cygni.
	-9.42.19,85				10,14				28.4.38,29	+33,07	α Cephei R.
59,37	-9.42.20,28								28.4.37,86		α Cephei.
	47.0.14,92	29,818	41,0	39,1	1.3,69				84.48.26,89	+22,59	Σ 2848.
	-6.18.35,93				6,58				31.28.25,77	+37,00	Piazzi XXII. 11.
58,86	15.14.28,82				16,20				53.1.53,30	+33,28	Σ 2882.
	-24.32.6,98	29,812	39,5	38,2	27,19				13.14.34,11	+41,81	γ Cephei R.
	-24.32.4,75								13.14.36,34		γ Cephei.
58,14	-73.9.46,63				3.14,40				-35.25.52,75	-35,82	γ U. Maj. SP. R.
	-73.9.45,42								-35.25.51,54		γ U. Maj. SP.
	23.59.4,32				26,49				61.46.39,09	+35,06	α Andromedæ R.
58,42	23.59.4,10								61.46.38,87		α Andromedæ.
	37.53.35,99				46,33				75.41.30,60	+31,36	γ Pegasi R.
	37.53.36,32								75.41.30,93		γ Pegasi.
58,19	16.14.35,45	29,806	38,7	37,8	17,37				34.2.1,10	+36,64	Σ 40.
	-3.27.35,98				3,60				34.19.28,70	+39,58	α Cassiopeie R.
	-3.27.36,10								34.19.28,58		α Cassiopeie.
57,37	7.29.23,43	29,782	40,0	38,6	7,82				45.16.39,53	+26,21	α Cygni R.
	7.29.21,67								45.16.37,77		α Cygni.
	33.40.13,17	29,800	38,8	37,2	39,73				71.28.3,18	+26,42	* Alt. 21.43.54. <i>ap.</i>
	47.0.15,58				1.3,91				84.48.27,77	+22,53	Σ 2848.
	-6.18.35,18				6,60				31.28.26,50	+36,98	Piazzi XXII. 11.
	43.0.3,18				59,60				82.48.11,06	+24,38	Σ 2878.
	15.14.28,65				16,26				53.1.53,19	+33,25	Σ 2882.
	48.33.45,30			36,8	1.7,54				86.22.1,12	+24,07	Σ 2878.
	11.47.48,97				12,47				49.35.9,72	+35,16	Σ 2916.
	57.14.5,67				1.32,33				95.2.46,48	+22,14	Piaz. XXII. 219.
	41.11.28,62				52,21				78.59.29,11	+28,13	Σ 2958.
58,69	37.53.35,29	29,824	38,2	36,5	46,51				75.41.30,08	+31,35	γ Pegasi R.
	37.53.36,17								75.41.30,96		γ Pegasi.
	16.14.35,93				17,42				34.2.1,63	+36,72	Σ 40.
58,38	-3.27.36,53				3,62				34.19.28,13	+39,76	α Cassiopeie R.
	-3.27.35,88								34.19.28,78		α Cassiopeie.

Coincidence of Micrometer Wire with fixed Wire = 10",121 at the middle wire. From Nov. 16 = 10",127.

One Micrometer Revolution = 20",854.

Correction for Run = - 0",8. From Nov. 16 = + 0",3.

Adopted Zenith Point = 177°. 48'. 58". 25.

Assumed Co-latitude = 37°. 47'. 8". 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
Nov. 25	Polaris R. M. ....	34. 0	4. 20,7	20,4	22,5	18,2	20,4	24,3	11,918	- 37,35			34. 3. 43,78	G.
	Polaris.....	141. 30	4. 15,4	10,3	17,0	9,9	14,8	16,4					141. 34. 14,02	G.
	$\alpha$ Arietis R. M. ....	328. 15	4. 16,5	15,3	17,7	13,4	17,7	19,8	9,418	+ 21,04			328. 19. 37,82	G.
	$\alpha$ Arietis.....	207. 15	3. 19,4	15,8	20,6	14,7	18,3	20,9					207. 18. 18,32	G.
	$\beta$ U. Min. SP. R. M. ....	50. 45	2. 13,3	14,3	15,2	12,9	14,2	19,1	11,096	- 20,21			50. 46. 54,64	G.
	$\beta$ Ursæ Min. SP. ....	124. 50	1. 3,7	2,3	5,5	0,6	3,2	4,7					124. 51. 3,32	G.
Dec. 3	$\Sigma$ 2878 M. ....	222. 50	1. 22,1	20,2	19,5	18,6	20,8	22,7	16,659	- 2. 16,28			222. 49. 4,25	G.
	(a) $\Sigma$ 2882. ....	193. 0	3. 28,7	26,2	27,9	24,7	28,1	29,2					193. 3. 27,15	G.
	$\Sigma$ 2905. ....	215. 35	4. 57,8	56,0	58,8	56,0	59,3	58,2					215. 39. 57,22	G.
	37 Pegasi.....	226. 20	2. 47,4	46,2	47,4	44,7	49,0	48,2					226. 22. 46,88	G.
	$\Sigma$ 2916. ....	189. 35	1. 47,7	45,8	48,2	44,9	47,3	48,0					189. 36. 46,82	G.
	(b) Piaz. XXII. 219. <i>sp.</i>	235. 0	3. 9,3	7,3	8,8	4,9	8,9	10,3					235. 3. 7,97	G.
	$\Sigma$ 2958. ....	219. 0	0. 29,6	28,0	27,8	26,9	30,0	30,8					219. 0. 28,80	G.
	$\alpha$ U. Maj. SP. R. M. ....	63. 0	0. 20,0	20,3	19,4	19,3	20,9	23,7	16,159	- 2. 5,85			62. 58. 14,72	G.
	(c) $\alpha$ Ursæ Majoris SP.	112. 35	4. 41,8	39,1	41,0	39,4	41,1	42,1					112. 39. 40,78	G.
	Piazzi XXII. 306. ....	198. 0	2. 51,7	49,8	51,4	48,9	52,1	52,1					198. 2. 50,73	G.
	$\gamma$ Cephei R. M. ....	22. 20	0. 26,9	25,9	26,4	24,8	26,9	29,3	8,209	+ 39,93			22. 21. 6,60	G.
	$\gamma$ Cephei.....	153. 15	1. 51,0	48,3	52,0	47,0	50,2	51,8					153. 16. 49,88	G.
	$\gamma$ U. Maj. SP. R. M. ....	70. 55	3. 28,7	27,6	27,6	26,7	29,8	32,2	8,821	+ 27,17			70. 58. 55,62	G.
	$\gamma$ Ursæ Majoris SP.	104. 35	3. 61,6	58,1	59,9	57,8	59,4	61,1					104. 38. 59,28	G.
	$\Sigma$ 3062. ....	172. 25	3. 13,9	11,9	13,7	10,7	13,4	14,2					172. 28. 12,67	G.
	$\Sigma$ 40. ....	194. 0	3. 34,9	32,8	35,1	31,8	34,8	36,3					194. 3. 33,95	G.
	$\alpha$ Cassiopeiae R. M. ....	1. 15	2. 22,9	20,2	23,1	20,8	24,8	23,4	12,357	- 46,57			1. 16. 35,75	G.
	$\alpha$ Cassiopeiae.....	174. 20	1. 20,6	16,6	20,8	17,6	20,0	22,0					174. 21. 19,48	G.
	Polaris R. M. ....	34. 0	4. 22,3	21,4	22,0	19,0	21,9	24,7	11,769	- 34,29			34. 3. 47,19	G.
	(d) Polaris.....	141. 30	4. 9,1	5,0	9,3	5,0	8,9	9,0					141. 34. 7,33	G.
Dec. 6	$\alpha$ Arietis R. M. ....	328. 15	3. 24,9	23,0	24,8	22,6	25,3	26,8	6,637	+ 1. 12,72			328. 19. 36,97	G.
	$\alpha$ Arietis.....	207. 15	3. 18,7	14,8	17,2	13,2	17,0	19,9					207. 18. 16,50	G.
	Capella R. M. ....	351. 25	1. 17,5	16,0	19,8	18,0	19,1	20,0	10,726	- 12,55			351. 26. 5,73	G.
	Capella.....	184. 10	1. 50,4	47,0	52,4	47,2	48,7	50,9					184. 11. 49,27	G.
	$\delta$ U. Min. SP. R. M. ....	39. 0	1. 18,2	16,4	17,9	16,0	17,5	21,0	14,922	- 1. 40,07			38. 59. 37,65	G.
	$\delta$ Ursæ Min. SP. ....	136. 35	3. 20,8	17,1	20,9	15,9	18,9	21,5					136. 38. 18,88	G.
Dec. 8	$\Sigma$ 3062. ....	172. 25	3. 13,7	10,1	13,1	9,6	13,2	13,3					172. 23. 11,87	G.
	$\gamma$ Pegasi R. M. ....	319. 50	3. 15,0	14,9	15,1	13,0	15,3	18,0	4,150	+ 2. 4,65			319. 55. 19,57	G.
	$\gamma$ Pegasi.....	215. 40	2. 36,0	34,3	35,9	34,0	37,4	38,1					215. 42. 35,70	G.
	$\alpha$ Cassiopeiae R. M. ....	1. 15	2. 29,9	28,2	31,0	29,4	32,3	31,3	12,707	- 53,81			1. 16. 36,31	G.
	$\alpha$ Cassiopeiae.....	174. 20	1. 20,1	16,7	20,1	16,9	20,2	21,2					174. 21. 19,08	G.
	(e) * R. 1 <sup>h</sup> . 24 <sup>m</sup> . 42 <sup>s</sup> . ....	200. 25	1. 36,2	32,0	35,4	31,9	34,3	36,9					200. 26. 34,30	G.
	(f) $\Sigma$ 162. ....	182. 50	4. 58,6	56,1	60,4	56,2	57,7	60,0					182. 54. 58,17	G.
	A.S.C. 193. ....	208. 30	1. 45,1	41,3	44,8	41,4	43,8	44,9					208. 31. 43,38	G.
	$\Sigma$ 179. ....	193. 25	3. 49,0	45,1	49,6	45,1	48,7	49,1					193. 28. 47,42	G.
	$\alpha$ Arietis R. M. ....	328. 15	3. 30,6	29,7	29,2	27,8	32,3	32,4	6,973	+ 1. 5,77			328. 19. 35,77	G.
	$\alpha$ Arietis.....	207. 15	3. 18,9	14,9	18,8	14,4	18,8	20,7					207. 18. 17,45	G.
	Aldebaran R. M. ....	321. 45	1. 23,8	23,9	23,8	24,0	24,8	28,0	5,276	+ 1. 41,16			321. 48. 5,74	G.
	(g) Aldebaran.....	213. 45	4. 48,2	46,0	49,4	45,4	48,2	48,3					213. 49. 47,60	G.
	Capella R. M. ....	351. 25	0. 25,0	24,2	26,3	25,0	25,9	28,2	8,187	+ 40,45			351. 26. 6,18	G.
	Capella.....	184. 10	1. 49,5	48,0	50,5	46,8	48,0	50,5					184. 11. 48,72	G.
Dec. 10	$\Sigma$ 2878. ....	222. 45	4. 5,0	1,3	4,3	0,0	5,0	5,6					222. 49. 3,15	G.
	$\Sigma$ 2905. ....	215. 35	4. 56,8	53,7	58,4	53,1	57,9	56,8					215. 39. 55,65	G.
	37 Pegasi.....	226. 20	2. 46,5	45,0	47,0	44,4	48,0	47,9					226. 22. 46,20	G.
	(h) $\Sigma$ 2916. ....	189. 35	1. 47,1	44,5	49,0	44,3	47,1	48,7					189. 36. 46,62	G.
	Piazzi XXII. 219. ....	235. 0	3. 7,7	6,2	8,6	4,1	7,2	8,9					235. 3. 6,83	G.
	$\Sigma$ 2958. ....	219. 0	0. 28,1	26,9	27,8	25,9	28,1	28,9					219. 0. 27,58	G.
	$\Sigma$ 3062. ....	172. 25	3. 13,8	10,1	13,8	9,5	12,8	13,3					172. 28. 11,92	G.
	$\Sigma$ 1. ....	193. 40	0. 62,1	58,0	63,9	58,8	61,0	63,7					193. 41. 1,15	G.
	$\Sigma$ 4. ....	222. 25	1. 18,3	15,4	17,8	15,1	17,2	19,2			+ 2	+ 0,08	222. 26. 17,13	G.
	$\alpha$ Cassiopeiae R. M. ....	1. 15	1. 18,0	16,1	19,3	16,3	19,8	19,3	9,231	+ 18,69			1. 16. 36,71	G.
	$\alpha$ Cassiopeiae.....	174. 20	1. 20,0	16,1	21,1	17,7	19,8	22,1					174. 21. 19,35	G.

Coincidence at the middle wire and Runs taken Dec. 3, 23<sup>h</sup>. (Temp. 47°.)Coincidence at the middle wire taken Dec. 11, 2<sup>h</sup>.

(a) Very faint. (b) The *sp* is the fainter star by half a magnitude. The same was observed Nov. 25. (c) The preceding divisions were bisected. Correction applied for Runs = + 0<sup>m</sup>.2. (d) After this observation it became quite cloudy. (e) Three very faint stars follow this at an interval of 1<sup>m</sup>. (f) No correction for Runs. (g) Preceding divisions bisected. Correction applied for Runs = + 0<sup>m</sup>.1. (h) This is *sf* with respect to a close double star 45" distant.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Lamb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	" " "	Inch.	"	"	" "	" "	"	" "	" " "	"	"
58,90	-36.14.45,53	29,838	57,8	56,0	43,88				1.31.38,87	+39,14	Polaris R.
	-36.14.44,23								1.31.40,17		Polaris.
58,07	29.29.20,43			35,0	33,93				67.17.2,64	+30,47	$\alpha$ Arietis R.
	29.29.20,07								67.17.2,28		$\alpha$ Arietis.
58,98	-52.57.56,39			33,6	1.19,62				-15.12.7,73	-26,72	$\beta$ Urs. Min. SP. R.
	-52.57.54,98								-15.12.6,27		$\beta$ Urse Min. SP.
	43.0.6,74	28,976	48,4	48,5	56,61				82.48.11,63	+23,87	$\Sigma$ 2878.
	13.14.29,64				15,44				53.1.53,36	+32,87	$\Sigma$ 2882.
	37.50.59,71				44,01				75.38.52,00	+27,13	$\Sigma$ 2905.
	48.33.49,37				1.3,11				86.22.1,76	+23,62	$\Sigma$ 2916.
	11.47.49,31				11,84				49.35.9,43	+34,97	$\Sigma$ 2916.
	57.14.10,46	28,986	48,6	48,0	1.27,94				95.2.46,68	+21,64	Piaz. XXII. 219. sp
	41.11.51,29				49,63				78.59.29,20	+27,74	$\Sigma$ 2958.
57,75	-65.9.17,21				2.1,90				-27.24.10,83	-38,28	$\alpha$ Urs. Maj. SP. R.
	-65.9.16,73								-27.24.10,35		$\alpha$ Urse Maj. SP.
	20.13.53,22				20,92				58.1.22,42	+34,77	Piaz. XXII. 306.
58,24	-24.32.9,09	28,990	47,8	47,6	25,93				13.14.33,26	+43,07	$\gamma$ Cephei R.
	-24.32.7,63								13.14.34,72		$\gamma$ Cephei.
57,45	-73.9.58,11				3.5,40				-35.25.55,23	-38,03	$\gamma$ Urs. Maj. SP. R.
	-73.9.58,23								-35.25.55,35		$\gamma$ Urse Maj. SP.
	-5.20.44,84				5,32				32.26.18,12	+41,59	$\Sigma$ 3062.
	16.14.36,44				16,55				54.2.1,27	+37,21	$\Sigma$ 40.
57,62	-3.27.38,24				3,44				34.19.26,60	+40,84	$\alpha$ Cassiopeie R.
	-3.27.38,03								34.19.26,84		$\alpha$ Cassiopeie.
57,26	-36.14.49,68	29,014			41,66				1.31.36,94	+41,34	Polaris R.
	-36.14.50,18								1.31.36,44		Polaris.
56,74	29.29.20,54	29,630	46,8	44,2	33,05				67.17.1,87	+30,82	$\alpha$ Arietis R.
	29.29.18,90								67.17.0,32		$\alpha$ Arietis.
57,50	6.22.51,78	29,680	42,6	41,4	6,59				44.10.6,65	+11,56	Capella R.
	6.22.51,76								44.10.6,63		Capella.
58,27	-41.10.40,14	29,700	41,8	40,3	51,63				-3.24.23,19	+4,97	$\delta$ Urs. Min. SP. R.
	-41.10.38,63								-3.24.21,98		$\delta$ Urse Min. SP.
	-5.20.45,64	29,308	47,4	45,5	5,40				32.26.17,24	+41,99	$\Sigma$ 3062.
57,64	57.53.57,94				44,86				75.41.31,08	+30,99	$\gamma$ Pegasi R.
	57.53.58,19								75.41.31,33		$\gamma$ Pegasi.
57,70	-3.27.38,80				3,49				34.19.25,99	+41,40	$\alpha$ Cassiopeie R.
	-3.27.38,43								34.19.26,36		$\alpha$ Cassiopeie.
	22.37.36,79	29,348	47,0	46,0	24,05				60.25.9,12	+34,22	$\star$ R. 1 <sup>st</sup> . 24 <sup>th</sup> . 42.
	5.6.0,66				5,15				42.53.14,09	+37,04	$\Sigma$ 162.
	30.42.45,87				34,26				68.30.28,41	+31,47	A.S.C. 193.
	15.39.49,91				16,18				53.27.14,37	34,78	$\Sigma$ 179.
56,61	29.29.21,74	29,358	46,6	45,5	32,06				67.17.2,68	+30,86	$\alpha$ Arietis R.
	29.29.19,94								67.17.0,88		$\alpha$ Arietis.
56,67	36.0.51,77	29,446	44,9	44,0	42,23				73.48.42,28	+16,55	Aldebaran R.
	36.0.50,09								73.48.40,60		Aldebaran.
57,45	6.22.51,33	29,462			6,50				44.10.6,11	+11,84	Capella R.
	6.22.51,21								44.10.5,99		Capella.
	45.0.5,64	29,304	45,4	45,0	57,67				82.48.11,59	+23,37	$\Sigma$ 2878.
	37.50.58,14				44,83				75.38.51,25	+26,60	$\Sigma$ 2905.
	48.33.48,69				1.5,30				86.22.2,27	+23,13	$\Sigma$ 2916.
	11.47.49,11				12,06				49.35.9,45	+34,51	$\Sigma$ 2916.
	57.14.9,32	29,738	45,0	44,4	1.29,66				95.2.47,26	+21,21	Piaz. XXII. 219.
	41.11.39,07				50,60				78.59.28,95	+27,30	$\Sigma$ 2958.
	-5.20.45,59	29,388	44,6	43,2	5,44				32.26.17,25	+42,11	$\Sigma$ 3062.
	15.52.3,64				16,52				53.39.28,44	+37,52	$\Sigma$ 1.
	44.37.19,62				57,29				82.25.25,19	+28,65	$\Sigma$ 4.
58,03	-3.27.39,20	29,412	44,3	42,8	3,52				34.19.25,56	+41,56	$\alpha$ Cassiopeie R.
	-3.27.38,16								34.19.26,60		$\alpha$ Cassiopeie.

Coincidence of Micrometer Wire with fixed Wire = 10', 127 at the middle wire. From Dec. 3 = 10', 124. From Dec. 8 = 10', 127.

One Micrometer Revolution = 20'', 854.

Correction for Run = + 0'', 3. From Dec. 3 = - 2'', 8.

Adopted Zenith Point = 177°. 48'. 58''. 25. From Dec. 3 = 177°. 48'. 57''. 51

Assumed Co-latitude = 37°. 47'. 8''. 28



Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
		" "	" "	" "	" "	" "	" "	" "	r.	" "		" "	" "	
Dec. 10	$\alpha$ Ceti R. M. ....	309. 0	2. 22,8	20,4	23,0	20,3	23,0	23,8	1,711	+ 2. 55,51			309. 5. 17,51	G.
	$\alpha$ Ceti. ....	226. 30	2. 38,7	36,1	37,7	35,3	38,8	39,3					226. 32. 37,40	G.
	$\alpha$ Persei R. M. ....	354. 50	3. 22,0	21,3	24,8	20,1	24,1	24,7	8,407	+ 35,87			354. 53. 58,39	G.
	$\alpha$ Persei. ....	180. 40	3. 56,8	52,7	57,9	52,9	55,0	56,9					180. 43. 55,00	G.
	$\Sigma$ 520. ....	207. 35	1. 15,3	13,6	15,6	11,3	15,8	16,0					207. 36. 14,48	G.
	Aldebaran R. M. ....	321. 45	1. 33,9	33,2	35,9	33,1	36,2	37,4	5,766	+ 1. 30,95			321. 48. 5,75	G.
	Aldebaran. ....	213. 45	4. 49,4	46,0	50,8	44,3	50,1	49,1					213. 49. 47,83	G.
	$\kappa$ Tauri. ....	205. 10	3. 9,9	7,2	11,2	6,7	9,4	11,5					205. 13. 9,02	G.
	Capella R. M. ....	351. 25	2. 28,1	26,9	30,4	27,7	29,9	31,0	14,062	- 1. 22,06			351. 26. 6,71	G.
	Capella. ....	184. 10	1. 48,9	46,1	51,0	47,0	48,2	50,2					184. 11. 48,40	G.
	$\beta$ Tauri R. M. ....	334. 5	1. 49,0	48,2	50,1	48,1	50,2	51,2	16,269	- 2. 8,08			334. 4. 41,22	G.
	$\beta$ Tauri. ....	201. 30	3. 14,9	12,2	16,1	9,8	13,0	14,5					201. 33. 13,12	G.
	(a) $\theta^1$ Orionis. ....	235. 25	4. 58,3	56,0	59,4	53,2	58,3	59,5					235. 29. 56,98	G.
Dec. 11	$\Sigma$ 2905. ....	215. 35	4. 55,1	54,3	57,9	52,7	56,3	55,3					215. 39. 54,82	G.
	Piazzi XXII. 306. ....	198. 0	2. 51,5	47,1	51,8	47,4	49,9	51,1					198. 2. 49,53	G.
	$\Sigma$ 3013. ....	214. 15	0. 17,2	14,0	17,0	13,2	15,6	16,8					214. 15. 15,60	G.
	$\gamma$ Cephei R. M. ....	22. 20	0. 40,2	38,8	39,7	38,0	39,5	41,8	8,840	+ 26,84			22. 21. 6,46	G.
	$\gamma$ Cephei. ....	153. 15	1. 50,7	47,3	52,8	47,1	49,3	51,3					153. 16. 49,58	G.
	$\gamma$ Ur. Maj. SP. R. M. ....	70. 55	2. 16,9	15,9	16,4	15,0	16,3	19,7	5,737	+ 1. 31,56			70. 58. 48,04	G.
	$\gamma$ Ursæ Maj. SP. ....	104. 35	4. 8,7	5,0	7,6	3,1	6,0	7,3					104. 39. 5,90	G.
	$\Sigma$ 1. ....	193. 40	0. 62,2	58,9	63,8	58,2	61,0	63,1					193. 41. 1,10	G.
	$\Sigma$ 4. ....	222. 25	1. 18,0	15,4	17,1	14,9	16,2	18,3			+ 2	+ 0,08	222. 26. 16,61	G.
Dec. 13	(b) $\alpha$ Lyrae R. M. ....	344. 15	1. 23,0	21,5	23,8	22,9			14,860	- 1. 38,71			344. 14. 44,09	G.
	$\alpha$ Lyrae. ....	191. 20	3. 9,0	6,9	10,2	6,3							191. 23. 8,12	G.
	Piazzi XXII. 306. ....	198. 0	2. 51,4	46,9	51,8	48,0							198. 2. 49,55	G.
	$\Sigma$ 3013. ....	214. 15	0. 17,3	14,5	17,0	14,1							214. 15. 13,82	G.
	$\Sigma$ 1. ....	193. 40	0. 62,4	58,1	63,7	59,7							193. 41. 0,98	G.
	$\Sigma$ 4. ....	222. 25	1. 18,0	15,0	17,7	15,2							222. 26. 16,48	G.
	35 Piscium. ....	222. 0	4. 8,2	4,1	9,0	5,9							222. 4. 6,82	G.
	38 Piscium M. ....	222. 0	4. 8,2	4,1	9,0	5,9			19,040	- 3. 5,87			222. 1. 0,95	G.
	$\Sigma$ 25. ....	214. 50	4. 4,4	0,8	5,9	0,8							214. 54. 3,00	G.
	$\alpha$ Cassiopeiae R. M. ....	1. 15	1. 25,5	24,3	26,0	25,1			9,688	+ 9,16			1. 16. 34,39	G.
	$\alpha$ Cassiopeiae. ....	174. 20	1. 19,2	16,2	20,1	17,1							174. 21. 18,15	G.
	(c) Polaris R. M. ....	34. 0	4. 10,8	9,3	11,5	8,0			11,159	- 21,52		- 0,07	34. 3. 48,34	G.
	Polaris. ....	141. 30	4. 8,4	3,7	8,4	3,4					+ 0,11		141. 34. 6,11	G.
Dec. 14	34 Piscium. ....	219. 40	4. 47,9	46,7	49,8	44,8							219. 44. 47,33	G.
	35 Piscium. ....	222. 0	4. 6,8	5,0	8,8	3,8							222. 4. 6,12	G.
	38 Piscium M. ....	222. 0	4. 6,8	5,0	8,8	3,8			19,000	- 3. 5,03			222. 1. 1,09	G.
	$\Sigma$ 25. ....	214. 50	3. 63,2	59,0	64,8	58,4							214. 54. 1,37	G.
	(d) Polaris R. M. ....	34. 0	4. 20,7	20,1	22,3	18,1			11,636	- 31,47			34. 3. 48,86	G.
	Polaris. ....	141. 30	4. 11,0	6,2	11,7	5,5							141. 34. 8,62	G.
	42 Ceti. ....	231. 20	0. 48,8	44,4	48,8	44,3							231. 20. 46,58	G.
	(e) * $\Delta$ . 1 <sup>h</sup> . 24 <sup>m</sup> . 42 <sup>s</sup> . ....	200. 25	1. 36,3	29,8	36,0	30,2							200. 26. 33,08	G.
	(f) $\Sigma$ 162. ....	182. 50	4. 59,9	54,0	62,3	55,4							182. 54. 57,90	G.
	A.S.C. 193. ....	208. 30	1. 46,1	40,5	46,4	40,4							208. 31. 43,35	G.
	$\Sigma$ 179. ....	193. 25	3. 49,0	43,8	51,0	42,8							193. 28. 46,67	G.
	(g) A.S.C. 203. ....	228. 55	1. 37,3	33,6	37,7	32,4							228. 56. 35,25	G.
	$\alpha$ Arietis R. M. ....	328. 15	2. 35,9	33,9	36,2	32,1			4,245	+ 2. 2,66			328. 19. 37,21	G.
	$\alpha$ Arietis. ....	207. 15	3. 18,3	13,4	18,5	12,7							207. 18. 15,75	G.
	$\alpha$ Ceti R. M. ....	309. 0	3. 39,1	36,0	39,2	35,2			5,221	+ 1. 42,32			309. 5. 19,72	G.
	$\alpha$ Ceti. ....	226. 30	2. 35,9	32,9	35,5	32,0							226. 32. 34,10	G.
	$\alpha$ Persei R. M. ....	354. 50	3. 42,7	42,0	46,7	41,4			9,316	+ 16,91			354. 54. 0,14	G.
	$\alpha$ Persei. ....	180. 40	3. 56,2	51,8	58,2	51,2							180. 43. 54,38	G.
	$\zeta$ Ur. Min. SP. R. M. ....	47. 15	3. 30,0	28,1	30,9	27,3			10,030	+ 2,03			47. 18. 31,13	G.
	$\zeta$ Ursæ Min. SP. ....	128. 15	4. 25,0	20,2	24,9	19,4							128. 19. 22,40	G.
	$\Sigma$ 520. ....	207. 35	1. 15,3	10,8	16,6	9,5							207. 36. 13,05	G.
	Aldebaran R. M. ....	321. 45	1. 37,8	37,0	39,9	36,1			5,871	+ 1. 28,76			321. 48. 6,46	G.
	(f) Aldebaran. ....	213. 45	4. 48,5	44,1	49,6	44,1							213. 49. 46,58	G.

Runs taken Dec. 13, 6<sup>h</sup>. (Temp. 44°.)Dec. 14, 1 $\frac{1}{2}$ <sup>h</sup>. Molyneux fast on Hardy, 43°.

(a) The first of the Trapezium. (b) Before this observation the wires of microscope E were found to be dis-  
arranged: the opposite microscope is consequently not read. (c) Times of observation by Molyneux, 1<sup>h</sup>. 4<sup>m</sup>. 44<sup>s</sup>. and  
1<sup>h</sup>. 5<sup>m</sup>. 0<sup>s</sup>. (d) The wind was annoying. (e) The stars which followed were too faint to observe. (See Dec. 8.)  
(f) No correction for runs. (g) This is  $\Sigma$  186; its magnitude was judged to be not less than 6,7.



Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
57,46	48.43.40,00	29,496	43,4	42,3	1. 6,48				86.31.54,76	+23,03	$\alpha$ Ceti R.
	48.43.39,89								86.31.54,65		$\alpha$ Ceti.
56,70	2.54.59,12				2,98				40.42.10,38	+28,62	$\alpha$ Persei R.
	2.54.57,49								40.42.8,75		$\alpha$ Persei.
	29.47.16,97	29,542	43,0	42,7	33,46				67.34.58,71	+19,10	$\Sigma$ 520.
56,79	36.0.51,76				42,48				73.48.42,50	+16,49	Aldebaran R.
	36.0.50,32								73.48.41,08		Aldebaran.
	27.24.11,51	29,578	43,2	42,1	30,38				65.11.50,17	+14,38	$\delta$ Tauri.
57,56	6.22.50,80				6,56				44.10.5,64	+12,12	Capella R.
	6.22.50,89								44.10.5,73		Capella.
57,17	23.44.16,29	29,596	43,2	42,0	25,79				61.31.50,36	+10,52	$\beta$ Tauri R.
	23.44.15,61								61.31.49,68		$\beta$ Tauri.
	57.40.59,47				1.32,47				95.29.40,22	+9,53	$\theta^1$ Orionis.
	37.50.57,31	29,806	43,2	42,3	45,85				75.38.51,44	+26,53	$\Sigma$ 2905.
	20.13.52,02		42,6	41,6	21,79				58.1.22,09	+34,43	Piazzi xxii. 306.
	36.26.18,09				43,63				74.14.10,00	+30,23	$\Sigma$ 3013.
58,02	-24.32.8,95				26,99				13.14.32,34	+43,79	$\gamma$ Cephei R.
	-24.32.7,93								13.14.33,36		$\gamma$ Cephei.
56,97	-73.9.50,53				3.12,98				-35.25.55,23	-39,70	$\gamma$ Ur. Maj. SP. R.
	-73.9.51,61								-35.25.56,31		$\gamma$ Ursæ Maj. SP.
	15.52.3,59				16,81				53.39.28,68	+37,53	$\Sigma$ 1.
	44.37.19,10				58,29				82.25.25,67	+28,59	$\Sigma$ 4.
56,11	13.34.12,63	29,200	48,8	48,4	13,79				51.21.34,70	+3,38	$\alpha$ Lyre R.
	13.34.11,40								51.21.33,47		$\alpha$ Lyre.
	20.13.52,83	29,160	45,6	43,9	21,22				58.1.22,33	+34,31	Piazzi xxii. 306.
	36.26.17,10				42,48				74.14.7,86	+30,12	$\Sigma$ 3013.
	15.52.4,26			43,2	16,39				53.39.28,93	+37,52	$\Sigma$ 1.
	44.37.19,76				56,84				82.25.24,88	+28,47	$\Sigma$ 4.
	44.15.10,10				56,12				82.3.14,50	+28,63	35 Piscium.
	44.12.4,23				56,02				82.0.8,53	+28,72	38 Piscium.
	37.5.6,28				43,56				74.52.58,12	+31,14	$\Sigma$ 25.
56,27	-3.27.37,67			42,7	3,49				34.19.27,12	+41,80	$\alpha$ Cassiopeie R.
	-3.27.38,57								34.19.26,22		$\alpha$ Cassiopeie.
57,23	-36.14.51,62			42,0	42,36				1.31.34,30	+43,64	Polaris R.
	-36.14.50,61								1.31.35,31		Polaris.
	41.55.50,61	29,858	39,3	37,0	53,67				79.43.52,56	+29,31	34 Piscium.
	44.15.9,40				58,20				82.3.15,88	+28,59	35 Piscium.
	44.12.4,37				58,10				82.0.10,75	+28,68	38 Piscium.
	37.5.4,65				45,18				74.52.58,11	+31,09	$\Sigma$ 25.
58,74	-36.14.52,14	29,892	38,0	36,6	43,91				1.31.32,23	+43,84	Polaris R.
	-36.14.48,10								1.31.56,27		Polaris.
	53.31.49,86				1.20,90				91.20.19,04	+25,44	42 Ceti.
	22.37.36,36				24,97				69.25.9,61	+34,39	$\delta$ R. 1°. 24". 42".
	5.6.1,18	29,902	38,2	36,4	5,35				42.53.14,81	+37,70	$\Sigma$ 162.
	30.42.46,63				35,61				68.30.30,52	+31,49	A.S.C. 193.
	15.39.49,95				16,81				53.27.15,04	+35,16	$\Sigma$ 179.
	51.7.38,53				1.14,26				88.56.1,07	+25,36	A.S.C. 203.
56,48	29.29.19,51				33,90				67.17.1,69	+30,92	$\alpha$ Arietis R.
	29.29.19,03								67.17.1,21		$\alpha$ Arietis.
56,91	48.43.37,00	29,928	37,8	35,5	1.8,41				86.31.53,69	+22,71	$\alpha$ Ceti R.
	48.43.37,38								86.31.54,07		$\alpha$ Ceti.
57,26	2.54.56,58				3,06				40.42.7,92	+29,26	$\alpha$ Persei R.
	2.54.57,66								40.42.9,00		$\alpha$ Persei.
56,77	-49.29.34,41		37,3	35,0	1.10,35				-11.43.36,48	-25,48	$\gamma$ Ur. Min. SP. R.
	-49.29.34,72								-11.43.36,39		$\gamma$ Ur. Min. SP.
	29.47.16,33				34,44				67.34.59,05	+19,14	$\Sigma$ 520.
56,52	36.0.50,26				48,73				73.48.42,27	+16,37	Aldebaran R.
	36.0.49,86								73.48.41,87		Aldebaran.

Coincidence of Micrometer Wire with fixed Wire = 10', 127 at the middle wire.

One Micrometer Revolution = 20", 854.

Correction for Run = -2", 8. From Dec. 13 = +0", 1

Adopted Zenith Point = 177° 48'. 57". 51. From Dec. 13 = 177° 48'. 56". 72

Assumed Co-latitude = 37°. 47'. 8". 28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Interval of Obs. from Middle Wire.	Correction to Middle Wire.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F						
		" "	" "	" "	" "	" "	" "	" "	r.	" "		" "	" "	
Dec. 14	<i>k</i> Tauri. ....	205.10	3. 9,7	4,8	11,1	4,1							205.13. 7,45	G.
	Capella R. M. ....	351.20	4. 14,6	12,7	17,8	12,8			4,780	+ 1.51,51			351.26. 6,01	G.
	Capella. ....	184.10	1. 49,0	45,0	51,7	45,5							184.11. 47,80	G.
	$\beta$ Tauri R. M. ....	334. 5	1. 48,7	47,3	49,8	46,7			16,169	- 2. 5,99			334. 4. 42,14	G.
	$\beta$ Tauri. ....	201.30	3. 14,9	10,3	16,5	8,7							201.33. 12,63	G.
	$\theta$ Orionis. ....	235.25	4. 56,8	53,0	58,1	51,2							235.29. 54,80	G.
Dec. 16	<i>a</i> Lyrae R. M. ....	344.10	4. 13,8	12,1	16,4	11,8			8,710	+ 29,55			344.14. 43,10	G.
	<i>a</i> Lyrae. ....	191.20	3. 10,0	7,1	12,2	6,4							191.23. 8,95	G.
Dec. 17	<i>a</i> Cygni R. M. ....	350.15	3. 21,8	21,2	25,6	19,8			6,909	+ 1. 7,11			350.19. 29,26	G.
	<i>a</i> Cygni. ....	185.15	3. 25,2	22,0	26,3	21,6							185.18. 23,82	G.
	<i>a</i> Cephei R. M. ....	7.30	2. 20,3	20,9	23,7	20,1			13,308	- 1. 6,34			7.31. 14,94	G.
	<i>a</i> Cephei. ....	168. 5	1. 41,8	38,0	42,8	38,0							168. 6. 40,18	G.
	$\beta$ Aquarii R. M. ....	299.20	1. 37,7	35,6	37,6	34,2			9,200	+ 19,34			299.21. 55,64	G.
	$\beta$ Aquarii. ....	236.15	0. 58,9	55,9	60,0	57,0							236.15. 57,97	G.
	$\beta$ Cephei R. M. ....	15.25	2. 26,0	25,0	26,8	23,0			8,003	+ 44,30			15.28. 9,53	G.
	$\beta$ Cephei. ....	160. 5	4. 48,2	45,0	50,6	42,8							160. 9. 46,72	G.
	$\epsilon$ Pegasi R. M. ....	314.40	4. 33,8	32,1	35,8	31,8			5,094	+ 1. 44,96			314.46. 18,41	G.
	$\epsilon$ Pegasi. ....	220.50	1. 37,3	35,0	37,8	34,3							220.51. 36,13	G.
	$\Sigma$ 3013. ....	214.15	0. 17,3	12,9	18,3	12,8							214.15. 15,33	G.
	<i>a</i> Androm. R. M. ....	333.50	0. 42,1	41,0	43,8	41,6			12,571	- 50,96			333.49. 51,17	G.
	<i>a</i> Andromede. ....	201.45	2. 64,0	59,0	64,8	57,4							201.48. 1,35	G.
	34 Piscium. ....	219.40	4. 49,0	45,1	50,8	44,9							219.44. 47,53	G.
	35 Piscium. ....	222. 0	4. 7,8	4,4	10,1	4,2							222. 4. 6,68	G.
	38 Piscium M. ....	222. 0	4. 7,8	4,4	10,1	4,2			19,060	- 3. 6,29			222. 1. 0,39	G.
	$\Sigma$ 25. ....	214.50	3. 63,6	59,1	66,0	58,1							214.54. 1,75	G.
Dec. 18	34 Piscium. ....	219.40	4. 48,5	45,9	50,9	45,4							219.44. 47,75	G.
	$\Sigma$ 19. ....	194.15	1. 5,0	0,0	7,7	0,6							194.16. 3,35	G.
	$\Sigma$ 24. ....	204.45	0. 18,4	14,0	19,7	14,1							204.45. 16,55	G.
	55 Piscium. ....	209.25	1. 43,9	40,2	45,8	40,3							209.26. 42,58	G.
	$\Sigma$ 51. ....	213.30	1. 27,7	23,2	27,4	23,0							213.31. 25,35	G.
	65 Piscium. ....	203.10	0. 9,0	4,0	9,8	4,0					-2	+ 0,30	203.10. 7,00	G.
	$\Sigma$ 63. ....	219. 0	2. 35,8	32,3	36,8	31,4							219. 2. 34,13	G.
	<i>a</i> Persei R. M. ....	354.50	3. 27,5	26,4	32,1	26,1			8,568	+ 32,51			354.54. 0,59	G.
	<i>a</i> Persei. ....	180.40	3. 55,5	50,2	58,6	50,6							180.43. 53,52	G.
	Aldebaran R. M. ....	321.45	3. 26,4	24,5	27,5	24,5			11,091	- 20,10			321.48. 5,68	G.
	Aldebaran. ....	213.45	4. 46,1	42,3	48,3	49,1							213.49. 46,53	G.
Dec. 20	<i>a</i> Androm. R. M. ....	333.45	4. 46,0	45,0	49,5	44,1			9,939	+ 3,93			333.49. 50,16	G.
	<i>a</i> Andromede. ....	201.45	2. 62,1	60,3	64,3	57,7							201.48. 1,15	G.
Dec. 21	<i>a</i> Lyrae R. M. ....	344.10	4. 14,5	14,2	18,2	13,3			8,855	+ 26,52			344.14. 41,65	G.
	<i>a</i> Lyrae. ....	191.20	3. 11,4	8,1	14,9	8,0							191.23. 10,65	G.
	$\gamma$ Cephei R. M. ....	22.20	1. 25,0	25,9	27,1	23,7			11,110	- 20,50			22.21. 4,95	G.
	$\gamma$ Cephei. ....	153.15	1. 47,9	46,1	52,4	45,3							153.16. 47,95	G.

Runs taken Dec. 18, 6<sup>h</sup>. (Temp. 32°).

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi- diameter.	Geoc. N. P. D. of Center.	Corr. to Mean N. P. D. Jan. 1, 1841.	NAME OF STAR or PLANET.
			Attach.	Free.							
"	"	Inch.	"	"	"	"	"	"	"	"	"
56,91	27. 24. 10,73	29,928	37,3	35,0	31,20				65. 11. 50,21	+ 14,46	$\delta$ Tauri.
	6. 22. 50,71				6,73				44. 10. 5,72	+ 12,68	Capella R.
	6. 22. 51,08								44. 10. 6,09		Capella.
57,38	23. 44. 14,58				26,46				61. 31. 49,32	+ 10,68	$\beta$ Tauri R.
	23. 44. 15,91				1. 34,89				61. 31. 50,65		$\beta$ Tauri.
	57. 40. 58,08								95. 29. 41,25	+ 8,83	$\delta^1$ Orionis.
56,03	13. 34. 13,62	29,200	43,3	43,0	13,94				51. 21. 35,84	+ 2,54	$\alpha$ Lyrae R.
	13. 34. 12,23								51. 21. 34,45		$\alpha$ Lyrae.
56,54	7. 29. 27,46	29,466	39,9	37,5	7,75				45. 16. 43,49	+ 22,51	$\alpha$ Cygni R.
	7. 29. 27,10								45. 16. 43,13		$\alpha$ Cygni.
57,56	- 9. 42. 18,22	29,472	39,0	36,7	10,10				28. 4. 39,96	+ 30,45	$\alpha$ Cephei R.
	- 9. 42. 16,54								28. 4. 41,64		$\alpha$ Cephei.
56,81	58. 27. 1,08				1. 35,92				96. 15. 45,28	+ 15,32	$\beta$ Aquarii R.
	58. 27. 1,25								96. 15. 45,45		$\beta$ Aquarii.
58,13	- 17. 39. 12,81				18,80				20. 7. 36,67	+ 32,84	$\beta$ Cephei R.
	- 17. 39. 10,00								20. 7. 39,48		$\beta$ Cephei.
57,27	43. 2. 38,31				55,11				80. 50. 41,70	+ 20,96	$\epsilon$ Pegasi R.
	43. 2. 39,41								80. 50. 42,80		$\epsilon$ Pegasi.
56,26	36. 26. 18,61	29,500	37,2	35,2	43,76				74. 14. 10,65	+ 29,85	$\Sigma$ 3013.
	23. 59. 5,55								61. 46. 40,24	+ 35,08	$\alpha$ Androm. R.
	23. 59. 4,63				26,41				61. 46. 39,32		$\alpha$ Andromedae.
	41. 55. 50,81				53,28				79. 43. 52,37	+ 29,13	34 Piscium.
	44. 15. 9,96				57,78				82. 3. 16,02	+ 28,40	35 Piscium.
	44. 12. 3,67				57,68				82. 0. 9,63	+ 28,18	38 Piscium.
	37. 5. 5,03				44,85				74. 52. 58,16	+ 30,94	$\Sigma$ 25.
57,06	41. 55. 51,03	29,400	35,0	32,1	53,40				79. 43. 52,71	+ 29,06	34 Piscium.
	16. 27. 6,63				17,57				54. 14. 32,48	+ 37,37	$\Sigma$ 19.
	26. 56. 19,83				30,23				64. 43. 58,34	+ 34,25	$\Sigma$ 24.
	31. 37. 45,86				36,66				69. 25. 30,80	+ 32,80	55 Piscium.
	35. 42. 28,63				42,77				73. 30. 19,68	+ 31,49	$\Sigma$ 51.
	23. 21. 10,28				28,20				63. 8. 46,76	+ 34,72	65 Piscium.
	41. 15. 37,41				52,12				79. 1. 37,81	+ 29,60	$\Sigma$ 63.
	2. 54. 56,13				3,04				40. 42. 7,45	+ 29,88	$\alpha$ Persei R.
	2. 54. 56,80								40. 42. 8,12		$\alpha$ Persei.
	36. 0. 51,04				43,45				73. 48. 42,77	+ 16,25	Aldebaran R.
56,11	36. 0. 49,81	29,350	32,0	28,9					73. 48. 41,54		Aldebaran.
55,66	23. 59. 6,56	29,266	33,7	32,0	26,35				61. 46. 41,19	+ 34,90	$\alpha$ Androm. R.
	23. 59. 4,33								61. 46. 39,06		$\alpha$ Andromedae.
56,15	13. 34. 15,07	29,546	35,0	33,9	14,38				51. 21. 37,73	+ 1,06	$\alpha$ Lyrae R.
	13. 34. 13,94								51. 21. 36,59		$\alpha$ Lyrae.
56,45	- 24. 32. 8,23	29,572	35,2	34,4	27,18				13. 14. 32,87	+ 44,15	$\gamma$ Cephei R.
	- 24. 32. 8,77								13. 14. 32,33		$\gamma$ Cephei.

Coincidence of Micrometer Wire with fixed Wire = 107,127 at the middle wire.

One Micrometer Revolution = 20",854.

Correction for Runs = + 0",1. From Dec. 17 = + 0",3.

Adopted Zenith Point = 177°. 48'. 56",72.

Assumed Co-latitude = 37°. 47'. 8",28.



MEAN NORTH POLAR DISTANCES OF STARS

OBSERVED IN THE YEAR 1841,

AS DEDUCED FROM EACH DAY'S OBSERVATION,

WITHOUT CORRECTIONS FOR THE DISCORDANCE OF ZENITH POINTS,  
AND FOR THE ALTERATION OF CO-LATITUDE:

WITH

A CATALOGUE

OF THE

CONCLUDED MEAN NORTH POLAR DISTANCES,

JANUARY 1, 1841,

CORRECTED FOR THE DISCORDANCE OF ZENITH POINTS,  
AND FOR THE ALTERATION OF CO-LATITUDE.

$\alpha$ Andromedæ.	$\Sigma$ 19.	$\alpha$ Cassiopeiæ SP. R.	Polaris SP.
Apr. 29.....61 . 47 . 14,57	Dec. 18.....54 . 15 . 9,85	Apr. 23.....34 . 20 . 8,50	Apr. 28.....1 . 32 . 17,64
Sept. 29 13,82	38 Piscium.	May 18 9,18	May 5 18,19
Nov. 11 14,20	Dec. 13.....82 . 0 . 37,25	55 Piscium.	6 17,16
18 13,69	14 39,43	Dec. 18.....69 . 26 . 3,60	14 17,03
24 13,93	17 38,11	$\Sigma$ 51.	18 17,11
Dec. 17 14,40	$\Sigma$ 24.	Dec. 18.....73 . 30 . 51,17	26 18,17
20 13,96	Dec. 18.....64 . 44 . 32,59	65 Piscium.	June 17 19,07
$\alpha$ Andromedæ R.	$\Sigma$ 25.	Dec. 18.....63 . 9 . 21,48	Sept. 11 16,81
Apr. 29.....61 . 47 . 15,38	Dec. 13.....74 . 53 . 29,26	$\Sigma$ 63.	11 17,90
Sept. 29 15,05	14 29,20	Dec. 18.....79 . 2 . 7,41	18 17,86
Nov. 11 14,94	17 29,10	Polaris.	23 17,77
18 14,44	$\Sigma$ 40.	Mar. 11.....1 . 32 . 19,76	Oct. 2 18,55
24 14,15	Nov. 24.....54 . 2 . 37,74	12 17,49	6 18,49
Dec. 17 15,32	25 38,35	13 18,92	10 19,07
20 16,09	Dec. 3 38,48	Apr. 29 19,32	19 17,87
$\Sigma$ 1.	$\alpha$ Cassiopeiæ.	May 12 19,55	Nov. 16 (15,69)
Dec. 10.....53 . 40 . 5,96	Oct. 25.....34 . 20 . 8,89	20 18,05	Polaris SP. R.
11 6,21	Nov. 11 8,45	Oct. 25 19,06	Apr. 28.....1 . 32 . 17,92
13 6,45	18 8,16	Nov. 6 17,75	May 5 18,66
$\Sigma$ 4.	24 8,16	8 18,90	6 19,80
Dec. 10.....82 . 25 . 53,84	25 8,54	25 19,31	14 19,56
11 54,26	Dec. 3 7,65	Dec. 3 17,78	18 19,46
13 53,35	8 7,76	13 18,95	26 19,23
34 Piscium.	10 8,16	14 20,11	June 17 19,26
Dec. 14.....79 . 44 . 21,87	13 8,02	Polaris R.	Sept. 11 18,63
17 21,50	$\alpha$ Cassiopeiæ R.	Mar. 11.....1 . 32 . 17,79	11 17,54
18 21,77	Oct. 25.....34 . 20 . 9,38	12 18,13	18 (21,46)
$\gamma$ Pegasi.	Nov. 11 8,61	13 17,84	23 19,56
Nov. 18.....75 . 42 . 2,65	18 7,26	Apr. 29 19,07	Oct. 2 (21,80)
24 2,29	24 8,28	May 12 17,23	6 19,47
25 2,31	25 7,89	20 18,49	10 19,08
Dec. 8 2,32	Dec. 3 7,44	Oct. 25 17,45	19 19,35
$\gamma$ Pegasi R.	8 7,39	Nov. 6 17,05	Nov. 16 (20,97)
Nov. 18.....75 . 42 . 1,52	10 7,12	8 18,65	42 Ceti.
24 1,96	13 8,92	25 18,01	Dec. 14.....91 . 20 . 44,48
25 1,43	$\alpha$ Cassiopeiæ SP.	Dec. 3 18,28	* R. 1 <sup>h</sup> . 24 <sup>m</sup> . 42 <sup>s</sup> .
Dec. 8 2,07	Apr. 23.....34 . 20 . 7,76	13 17,94	Dec. 8.....60 . 25 . 43,34
35 Piscium.	May 18 8,05	14 16,07	14 44,00
Dec. 13.....82 . 3 . 43,13			$\Sigma$ 162.
14 44,47			Dec. 8.....42 . 53 . 51,13
17 44,42			14 52,51
			A.S.C. 193.
			Dec. 8.....68 . 30 . 59,88
			14 31 . 2,01

<p><math>\Sigma</math> 179.</p> <p>Dec. 8.....53. 27. 49,15 14 50,20</p>	<p><math>d</math> Pleiadum.</p> <p>Mar. 4.....66. 33. 7,42 6 8,13</p>	<p><math>\beta</math> Tauri.</p> <p>Mar. 6.....61. 31. 59,30 Dec. 10 32. 0,20 14 1,33</p>	<p>Castor R.</p> <p>Mar. 11.....57. 46. 10,64 25 10,21</p>
<p>A.S.C. 203.</p> <p>Dec. 14.....88. 56. 26,43</p>	<p><math>\Sigma</math> 520.</p> <p>Dec. 10.....67. 35. 17,81 14 18,19</p>	<p><math>\beta</math> Tauri R.</p> <p>Mar. 6.....61. 32. 1,90 Dec. 10 0,88 14 0,00</p>	<p>Procyon.</p> <p>Mar. 11.....84. 22. 20,43</p>
<p><math>\alpha</math> Arietis.</p> <p>Sept. 30.....67. 17. 32,85 Nov. 2 31,53 25 32,73 Dec. 6 31,14 8 31,74 14 32,13</p>	<p>Aldebaran.</p> <p>Dec. 8.....73. 48. 57,15 10 57,57 14 58,24 18 57,79</p>	<p><math>\theta^1</math> Orionis.</p> <p>Mar. 6.....95. 29. 50,17 Dec. 10 49,75 14 50,08</p>	<p>Procyon R.</p> <p>Mar. 11.....84. 22. 20,59</p>
<p><math>\alpha</math> Arietis R.</p> <p>Sept. 30.....67. 17. 32,47 Nov. 2 32,73 25 33,11 Dec. 6 32,69 8 33,54 14 32,61</p>	<p>Aldebaran R.</p> <p>Dec. 8.....73. 48. 58,83 10 58,99 14 58,64 18 59,02</p>	<p><math>\epsilon</math> Tauri.</p> <p>Mar. 6.....62. 25. 54,72 10 54,47</p>	<p><math>\epsilon</math> Geminorum.</p> <p>Mar. 10.....63. 50. 34,99 11 33,17 19 35,78</p>
<p><math>\alpha</math> Ceti.</p> <p>Dec. 10.....86. 32. 17,68 14 16,78</p>	<p>A.S.C. 552. SP.</p> <p>June 26.....23. 56. 18,26 July 8 16,91</p>	<p><math>\kappa</math> Aurigæ.</p> <p>Mar. 6.....60. 27. 0,21 12 0,48</p>	<p><math>\omega^1</math> Cancri.</p> <p>Mar. 11.....64. 10. 37,74 19 39,69 24 39,04</p>
<p><math>\alpha</math> Ceti R.</p> <p>Dec. 10.....86. 32. 17,79 14 16,40</p>	<p>A.S.C. 552. SP. R.</p> <p>June 26.....23. 56. 15,14 July 8 16,11</p>	<p><math>\ast</math> R. 6<sup>h</sup>. 24<sup>m</sup>. 7<sup>s</sup>.</p> <p>Mar. 10.....33. 1. 25,29 11 25,77</p>	<p><math>\delta</math> Cancri.</p> <p>Mar. 11.....61. 45. 54,66 19 55,59</p>
<p><math>\alpha</math> Persei.</p> <p>June 17.....40. 42. 38,03 Nov. 12 38,45 Dec. 10 37,37 14 38,26 18 38,00</p>	<p><math>k</math> Tauri.</p> <p>Dec. 10.....65. 12. 4,55 14 4,67</p>	<p><math>\Sigma</math> 941.</p> <p>Mar. 10.....48. 17. 26,68 11 26,61</p>	<p><math>\zeta</math> Cancri.</p> <p>Mar. 19.....71. 52. 40,96 24 40,61 25 40,63</p>
<p><math>\alpha</math> Persei R.</p> <p>June 17.....40. 42. (41,78) Nov. 12 37,37 Dec. 10 39,00 14 37,18 18 37,33</p>	<p>Capella.</p> <p>June 17.....44. 10. 18,23 Dec. 6 18,19 8 17,83 10 17,85 14 18,77</p>	<p><math>\ast</math> R. 6<sup>h</sup>. 30<sup>m</sup>. 46<sup>s</sup>.</p> <p>Mar. 10.....35. 58. 51,62 11 52,53</p>	<p><math>\beta</math> Cancri.</p> <p>Mar. 11.....80. 19. 45,77</p>
<p><math>\alpha</math> Persei R.</p> <p>June 17.....40. 42. (41,78) Nov. 12 37,37 Dec. 10 39,00 14 37,18 18 37,33</p>	<p>Capella R.</p> <p>June 17.....44. 10. 17,94 Dec. 6 18,21 8 17,95 10 17,76 14 18,40</p>	<p>Piazzi VI. 301.</p> <p>Mar. 10.....37. 0. 43,62 11 43,95 15 43,54</p>	<p><math>\beta</math> Cancri R.</p> <p>Mar. 11.....80. 19. 45,73</p>
<p><math>\epsilon</math> Pleiadum.</p> <p>Mar. 4.....66. 2. 13,05 6 11,19 9 11,09</p>	<p>14 Aurigæ.</p> <p>Mar. 4.....57. 30. 11,39 6 11,48 23 11,69</p>	<p>47 Geminorum.</p> <p>Mar. 10.....62. 53. 17,69 11 17,98 25 18,28</p>	<p><math>\lambda</math> Cancri.</p> <p>Mar. 11.....65. 28. 54,26 19 55,58 24 54,61</p>
		<p>Castor.</p> <p>Mar. 11.....57. 46. 8,46 25 9,41</p>	<p><math>\nu^1</math> Cancri.</p> <p>Mar. 19.....64. 56. 53,75 24 52,84 27 53,91</p>



* $\mathcal{R}$ . $8^h.48^m.16^s$ .	$\nu$ Ursæ Majoris SP.	$m$ Ursæ Majoris R.	$\alpha$ Ursæ Majoris R.
Mar. 18..... $68.2.32,36$ 19                  33,75	Sept. 10..... $30.13.4,72$ Oct. 11                  5,30	Mar. 12..... $32.6.2,64$	Apr. 23..... $27.23.30,37$ Sept. 5                  30,88 9                  32,15 16                  30,97 17                  30,92
$\kappa$ Ursæ Majoris.	$\nu$ Ursæ Majoris SP. R.	$\Sigma$ 1447.	Oct. 1                  30,77 5                  30,54 6                  31,67 11                  32,19 12                  31,67
Mar. 24..... $42.13.10,85$	Sept. 10..... $30.13.2,35$ Oct. 11                  2,74	Apr. 23..... $65.49.53,09$ 27                  52,79 28                  52,78	
$\kappa$ Ursæ Majoris R.		49 Leonis.	$\alpha$ Ursæ Majoris SP.
Mar. 24..... $42.13.11,06$	$\nu$ Leonis.	Mar. 17..... $80.31.48,97$ 24                  47,66	Sept. 6..... $27.23.30,91$ 10                  33,45 13                  31,74 16                  30,15 17                  30,91 30                  31,62
* $\mathcal{R}$ . $8^h.58^m.37^s$ .	Mar. 24..... $76.47.56,96$ Apr. 23                  56,56 27                  57,24	Apr. 19                  47,09	Oct. 21                  30,30 23                  32,55 Dec. 3                  32,07
Mar. 18..... $68.21.17,21$ 19                  18,23		35 Sextantis.	$\alpha$ Ursæ Majoris SP. R.
* $\mathcal{R}$ . $9^h.3^m.39^s$ .	$\eta$ Leonis.	Apr. 23..... $84.25.11,12$ 27                  11,48 28                  10,37	Sept. 6..... $27.23.31,20$ 10                  30,86 13                  31,61 16                  30,62 17                  31,64 30                  31,67
Mar. 18..... $68.40.29,05$ 19                  29,20	Mar. 24..... $72.27.50,76$ Apr. 19                  50,89 23                  51,47	$l$ Leonis.	Oct. 21                  30,88 23                  32,19 Dec. 3                  32,55
A.S.C. 1132.	Regulus.	Mar. 17..... $78.36.54,93$ 24                  54,40	* $\mathcal{R}$ . $10^h.53^m.58^s$ .
Mar. 19..... $64.9.38,61$ 24                  38,59	Apr. 27... .. $77.15.28,87$ Oct. 1                  29,31 5                  29,91	$\nu$ Hydræ et Crateris.	Mar. 17..... $80.16.36,31$ 24                  36,04
* $\mathcal{R}$ . $9^h.14^m.48^s$ .	Regulus R.	Apr. 23..... $105.21.45,82$ 28                  44,71	Apr. 28                  35,49
Mar. 19..... $68.57.37,78$ 24                  37,26	Apr. 27..... $77.15.(32,14)$ Oct. 1                  29,35 5                  29,01	$\nu$ Hydræ et Crateris R.	$\chi$ Leonis.
Apr. 12                  36,22		Apr. 23..... $105.21.47,94$ 28                  49,14	Mar. 17..... $81.48.20,38$ 24                  20,61
$\omega$ Leonis.	$\lambda$ Ursæ Majoris.		* $\mathcal{R}$ . $10^h.57^m.54^s$ .
Mar. 19..... $80.15.17,73$ 24                  16,83	Mar. 24..... $46.17.39,22$	54 Leonis.	Apr. 23..... $82.0.19,26$ 28                  17,79 29                  18,15
Apr. 12                  15,61 27                  15,44	$\lambda$ Ursæ Majoris R.	Apr. 23..... $64.24.12,41$ 28                  11,38	$\Sigma$ 1511.
* $\mathcal{R}$ . $9^h.21^m.4^s$ .	Mar. 24..... $46.17.39,94$	$\alpha$ Ursæ Majoris.	Apr. 23..... $78.13.50,32$ 28                  47,53 29                  48,19
Mar. 19..... $69.50.44,77$ 24                  43,56	45 Leonis.	Apr. 23..... $27.23.32,20$	
$\nu$ Ursæ Majoris.	Mar. 17..... $79.25.46,64$ 24                  45,35	Sept. 5                  32,39 9                  31,64 16                  33,45 17                  31,69	
Mar. 24..... $30.13.3,39$	Apr. 23                  45,80	Oct. 1                  32,16 5                  32,85 6                  32,13 11                  31,37 12                  31,55	
$\nu$ Ursæ Majoris R.	$m$ Ursæ Majoris.		
Mar. 24..... $30.13.2,91$	Mar. 12..... $32.6.3,68$		

$\delta$ Leonis.	$\lambda$ Draconis R.	$\beta$ Leonis.	* $\mathcal{R}$ . 11 <sup>h</sup> . 59 <sup>m</sup> . 25 <sup>s</sup> .
Mar. 24.....68 . 36 . 20,71	Mar. 17.....19 . 47 . 30,93	Apr. 10.....74 . 32 . 19,19 23 21,08 27 19,79	Apr. 23.....84 . 36 . 3,84 May 5 3,16 6 2,86
$\delta$ Leonis R.	$\lambda$ Draconis SP.	$\beta$ Leonis R.	$\Sigma$ 1608.
Mar. 24.....68 . 36 . 21,91	Sept. 13.....19 . 47 . 33,00 18 31,63	Apr. 10.....74 . 32 . 22,43 23 21,44 27 22,93	May 6.....35 . 41 . 17,36
A.S.C. 1322.	Oct. 19 31,05	$\gamma$ Ursæ Majoris.	2 Canum Venaticorum.
Mar. 17.....81 . 4 . 13,28	$\lambda$ Draconis SP. R.	$\gamma$ Ursæ Majoris R.	Apr. 23.....48 . 27 . 14,13 May 5 14,21 6 14,48
Apr. 27 13,13 29 12,63	Sept. 13.....19 . 47 . 32,62 18 32,00	Apr. 23.....35 . 25 . 16,00 27 13,52	$\Sigma$ 1632.
$\phi$ Leonis.	Oct. 19 32,89	May 5 16,44	May 5.....51 . 12 . 50,97 6 51,72 14 50,99
Apr. 23.....92 . 46 . 59,63 27 59,15 29 59,18	* $\mathcal{R}$ . 11 <sup>h</sup> . 27 <sup>m</sup> . 45 <sup>s</sup> .	Oct. 1 16,43 10 15,08	$\Sigma$ 1633.
$q$ Leonis.	Mar. 17.....82 . 21 . 12,18 24 11,84	$\gamma$ Ursæ Majoris SP.	Apr. 23.....62 . 3 . 28,34 May 5 29,32 6 28,30
Mar. 17.....87 . 6 . 58,65	Apr. 10 10,85	Apr. 23.....35 . 25 . 15,17 27 16,78	$\Sigma$ 1653.
$\Sigma$ 1529.	$\Sigma$ 1553.	May 5 14,58	May 5.....57 . 4 . 46,57 6 46,84 14 45,73
Apr. 23.....90 . 46 . 46,81 27 44,96 29 45,43	Apr. 23.....32 . 58 . 54,54 27 52,86 29 54,01	Oct. 1 15,00 10 15,39	* $\mathcal{R}$ . 11 <sup>h</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> .
$\epsilon$ Leonis.	* $\mathcal{R}$ . 11 <sup>h</sup> . 29 <sup>m</sup> . 7 <sup>s</sup> .	$\gamma$ Ursæ Majoris SP.	Mar. 17.....82 . 51 . 4,07 24 3,28
Mar. 17.....83 . 6 . 1,43 24 0,59	Apr. 10 2,77	Sept. 29.....35 . 25 . 15,13 Nov. 24 15,72	$\alpha$ Draconis.
Apr. 27 0,68	Piazzi XI. 126.	Dec. 3 17,32 11 16,61	May 18.....19 . 20 . 4,07
83 Leonis.	Apr. 23.....91 . 33 . 22,63 27 23,09 29 22,42	$\gamma$ Ursæ Majoris SP. R.	* $\mathcal{R}$ . 11 <sup>h</sup> . 34 <sup>m</sup> . 17 <sup>s</sup> .
Apr. 23.....86 . 7 . 16,18 27 16,36 29 15,83	$\Sigma$ 1561.	Sept. 29.....35 . 25 . 15,00 Nov. 24 16,93	May 5.....84 . 53 . 39,30 6 39,01
$\Sigma$ 1541.	May 5.....44 . 0 . 43,32	Dec. 3 17,20 11 15,53	$\alpha$ Draconis SP.
Apr. 27.....42 . 49 . 43,62 29 43,39	* $\mathcal{R}$ . 11 <sup>h</sup> . 38 <sup>m</sup> . 56 <sup>s</sup> .	$\alpha$ Draconis SP. R.	$\Sigma$ 1661.
57 Ursæ Majoris SP.	* $\mathcal{R}$ . 11 <sup>h</sup> . 38 <sup>m</sup> . 56 <sup>s</sup> .	May 5.....77 . 42 . 53,48 6 52,70 14 53,76	
Apr. 27.....49 . 47 . 17,46	May 5.....82 . 34 . 47,32	2 Comæ Bereniceæ.	
$\alpha$ Draconis.	* $\mathcal{R}$ . 11 <sup>h</sup> . 38 <sup>m</sup> . 56 <sup>s</sup> .	May 5.....67 . 39 . 17,24 6 17,01 14 17,22	
Mar. 17.....19 . 47 . 33,48	May 5.....83 . 14 . 22,31		

Piazzi XII. 201.	Σ 1760.	Piazzi XIII. 277.	Arcturus R.
May 6.....69 . 57 . 56,60	May 28.....62 . 54 . 9,59	May 6.....36 . 7 . 8,51 14 9,01 15 8,50	Apr. 19.....69 . 59 . 13,04
Piazzi XII. 202.	1 Bootis.		May 15 11,93
May 14.....69 . 57 . 42,30 18 41,71	May 5.....69 . 14 . 15,24 14 14,92 15 16,10	α Draconis.	June 10 11,43 25 12,64
42 Virginis (?)		May 15.....24 . 51 . 45,60	Oct. 2 12,87
May 6.....81 . 17 . 52,06 14 53,43	84 Virginis.	June 10 46,46	Nov. 10 12,38 16 12,58
	June 10.....85 . 39 . 18,15	Nov. 10 46,23 12 46,17	Σ 1825.
Σ 1690.	η Ursæ Majoris.	α Draconis R.	May 6.....69 . 7 . 58,74 28 58,61
May 14.....94 . 0 . 5,14 18 2,93 26 5,22	May 5.....39 . 53 . 27,12 6 27,00 15 27,32 18 27,30 28 26,19	May 15.....24 . 51 . 43,70	June 1 58,23
Σ 1727.	Sept. 10 25,34	June 10 44,13	λ Virginis.
May 14.....57 . 46 . 55,67 15 55,26	η Ursæ Majoris R.	Nov. 10 43,96 12 44,82	Apr. 19.....102 . 38 . 7,56
53 Virginis.	May 5.....39 . 53 . 28,44 6 26,11 15 27,77 18 27,33 28 28,78	α Draconis SP.	June 1 7,63
Apr. 28.....105 . 20 . 18,28	Sept. 10 29,27	Oct. 6.....24 . 51 . 44,17	Σ 1830.
May 5 20,91	Σ 1785.	Nov. 6 45,66 18 43,84	May 6.....32 . 35 . 14,51 15 14,65 18 13,22
* R. 13 <sup>h</sup> . 8 <sup>m</sup> . 42 <sup>s</sup> .	June 1.....62 . 13 . 19,75 10 20,78	α Draconis SP. R.	* R. 14 <sup>h</sup> . 10 <sup>m</sup> . 52 <sup>s</sup> .
May 5.....71 . 51 . 30,44 14 29,38 15 29,85	η Bootis.	Oct. 6.....24 . 51 . 45,42	May 14.....32 . 34 . 1,75 15 1,79 18 1,79
Spica.	May 28.....70 . 48 . 8,37	Nov. 6 44,60 18 44,32	Σ 1831.
Apr. 29.....100 . 19 . 44,74	June 10 10,10 17 7,94	Σ 1804.	May 6.....32 . 32 . 54,73 14 55,03 15 54,31 18 55,30
June 17 44,20	η Bootis R.	May 6.....68 . 2 . 46,73 14 47,63 18 47,06	Σ 1838.
Spica R.	May 28.....70 . 48 . 9,39	κ Bootis.	May 15.....78 . 1 . 32,98 18 33,29
Apr. 29.....100 . 19 . 45,27	June 10 8,60 17 8,61	Arcturus.	June 1 31,72
June 17 45,84	Σ 1751.	Apr. 19.....69 . 59 . 11,64	Σ 1858.
	May 28.....79 . 51 . 28,84	May 15 11,49	May 6.....53 . 42 . 54,53 15 53,84
* R. 13 <sup>h</sup> . 25 <sup>m</sup> . 58 <sup>s</sup> .	Σ 1790.	June 10 12,72 25 12,59	June 10 54,58
May 5.....97 . 47 . 59,26 14 59,19 15 58,33	May 6.....93 . 50 . 10,00 14 8,22 15 10,47	Oct. 2 11,96	π Bootis.
		Nov. 10 11,61 16 11,69	June 12.....72 . 53 . 45,78 25 47,69

MEAN NORTH POLAR DISTANCES OF STARS OBSERVED IN THE YEAR 1841. [111]

$\Sigma$ 1870.	$\beta$ Ursæ Minoris R.	$\Sigma$ 1934.	$\Sigma$ 1988.
June 12.....81. 14. 34,02	May 6.....15. 11. 40,08	June 21.....45. 37. 7,36	June 23.....77. 3. 22,38 25 21,97
$\Sigma$ 1873.	June 1 39,56	$\eta$ Coronæ Borealis.	July 8 20,18
June 10.....81. 37. 21,78 12 19,95	Nov. 10 39,20 12 38,46	June 4.....59. 8. 3,08 21 2,17 23 3,33	$\zeta$ Ursæ Minoris.
$\epsilon$ Bootis.	$\beta$ Ursæ Minoris SP.	$\Sigma$ 1943.	May 14.....11. 43. 13,14 28 11,91
Apr. 19.....62. 15. 5,98	Nov. 6.....15. 11. 42,37 25 39,55	June 21.....84. 4. 18,70	$\zeta$ Ursæ Minoris R.
May 26 6,09	$\beta$ Ursæ Minoris SP. R.	A.S.C. 1752.	May 14.....11. 43. 8,78 28 8,74
$\epsilon$ Bootis R.	Nov. 6.....15. 11. 41,62 25 41,01	June 21.....106. 42. 7,76	$\zeta$ Ursæ Minoris SP.
Apr. 19.....62. 15. 6,95	$\Sigma$ 1895.	$\Sigma$ 1950.	Dec. 14.....11. 43. 10,91
May 26 7,36	June 10.....49. 11. 49,26 12 49,60 21 48,08	June 21.....63. 56. 30,71 25 30,98	$\zeta$ Ursæ Minoris SP. R.
$\Sigma$ 1878.	$\Sigma$ 1896.	$\Sigma$ 1953.	Dec. 14.....11. 43. 11,00
May 6.....28. 3. 31,57 15 30,91	June 12.....45. 18. 54,88 21 53,86	June 21.....83. 56. 59,65	A.S.C. 1840.
June 1 29,73	$\Sigma$ 1904.	$\alpha$ Coronæ Borealis.	May 28.....115. 53. 37,84
$\Sigma$ 1882.	June 10.....83. 52. 49,01 12 47,41 21 46,98	June 1.....62. 44. 44,72 23 44,61 25 45,79	June 4 37,23 July 8 38,66
May 6.....28. 13. 38,36 15 38,73	$\epsilon$ Bootis.	$\alpha$ Coronæ Borealis R.	49 Serpentis.
June 1 37,11	June 10.....41. 43. 26,88 12 26,16 21 25,73	June 1.....62. 44. 46,00 23 45,57 25 47,27	June 23 .....76. 2. 34,39 July 8 33,96 9 34,02
$\Sigma$ 1886.	Piazzi XIV. 279.	$\chi$ Libræ.	$\sigma$ Coronæ Borealis.
June 1.....59. 37. 5,71 10 7,34 12 7,58	June 10.....80. 9. 33,44 12 33,68 21 32,77	June 1.....113. 17. 42,18 23 43,18 25 44,61	May 28 .. 55. 44. 3,95
$\xi$ Bootis.	$\star$ AL 15°. 6°. 56°.	$\delta$ Scorpii.	June 4 5,29 23 4,42
June 10.....70. 14. 11,25 12 10,61 21 11,00	June 4 . 97. 14. 6,35 12 10,54	May 14.....115. 47. 26,88 28 26,61	$\epsilon$ Ophiuchi.
39 Bootis.	$\Sigma$ 1951.	$\Sigma$ 1985.	$\epsilon$ Ophiuchi R.
June 1.....40. 37. 21,01 10 23,23 12 23,44	June 4 . 78. 39. 17,43 21 16,88 23 17,40	June 23. 91. 41. 29,91 25 30,00	July 8 .. 94. 17. 58,59
$\beta$ Ursæ Minoris.		July 8 27,93	Piazzi XVI. 87.
May 6.....15. 11. 43,44			July 8 .....114. 47. 21,29
June 1 41,00			
Nov. 10 41,80 12 43,22			

$\eta$ Draconis.	$\epsilon$ Ursæ Minoris <i>continued.</i>	$\alpha$ Ophiuchi R.	$\alpha$ Lyræ.
June 1.....28. 7. 27,84 25 27,98	June 22.....7. 42. 42,78 25 42,77 26 42,65	June 10.....77. 19. 7,44 July 16 8,15 17 8,82	June 22.....51. 21. 37,22 July 16 36,39 Aug. 27 35,69
$\eta$ Draconis R.	July 8 42,66 9 42,32 16 43,28	A.S.C. 2042.	Sept. 21 36,47 22 36,51 24 36,50
June 1.....28. 7. 26,94 25 28,73	$\epsilon$ Ursæ Minoris R.	June 10.....121. 38. 23,80	Oct. 19 36,82 20 36,23 21 36,28
$\Sigma$ 2052.	May 26.....7. 42. 40,99	$\Sigma$ 2213.	Nov. 8 36,14 Dec. 13 36,85 16 36,99 21 37,65
July 9.....71. 14. 48,17 17 49,31	June 21 42,01 22 42,68 25 41,54 26 41,66	July 16.....58. 47. 52,95 17 49,80	
$\lambda$ Ophiuchi.	July 8 42,45 9 42,67 16 40,94	A.S.C. 2044.	
July 9.....87. 39. 45,05 17 45,31		June 10.....120. 32. 2,83 26 3,86	$\alpha$ Lyræ R.
$\Sigma$ 2087.	$\alpha$ Herculis.	* $R. 17^h. 46^m. 11^s$ .	June 22.....51. 21. 37,30 July 16 37,10 Aug. 27 37,67
July 17.....66. 1. 36,63	May 26.....75. 25. 23,43	June 26.....48. 9. 55,49	Sept. 21 37,48 22 36,95 24 37,13
$l$ Ophiuchi.	June 21 24,18 22 24,12 25 24,10	July 8 57,91	Oct. 19 37,34 20 37,55 21 37,02
June 22.....88. 40. 56,26	July 8 23,90 9 24,45 16 24,20	* $R. 17^h. 46^m. 12^s$ .	Nov. 8 36,41 Dec. 13 38,08 16 38,38 21 38,79
July 9 55,98 16 56,51		June 26.....48. 11. 44,77	
$\Sigma$ 2104.	$\alpha$ Herculis R.	July 8 43,12	
July 9.....53. 47. 45,59 16 45,76 17 44,96	May 26.....75. 25. 23,95	$\delta$ Ursæ Minoris.	$\beta$ Lyræ.
21 Ophiuchi.	June 21 24,02 22 23,65 25 (20,43)	July 16.....3. 24. 28,82	Sept. 22.....56. 49. 3,86 24 3,62
May 26.....88. 30. 26,36	July 8 24,53 9 23,79 16 24,05	Aug. 27 27,37	Oct. 19 3,50
June 22 25,66 26 26,36		Sept. 21 27,78 22 28,11 24 28,63	
* $R. 16^h. 45^m. 18^s$ .	41 Ophiuchi.	$\delta$ Ursæ Minoris R.	$\beta$ Lyræ R.
May 26.....86. 42. 35,69	June 26.....90. 15. 35,63	July 16.....3. 24. 26,49	Sept. 22.....56. 49. 4,01 24 3,70
30 Ophiuchi.	$\Sigma$ 2178.	Aug. 27 28,49	Oct. 19 3,45
May 26.....93. 58. 41,40	July 16.....54. 55. 56,88 17 55,80	Sept. 21 27,51 22 27,81 24 26,86	$\Sigma$ 2523.
June 22 40,26 26 41,09	$\alpha$ Ophiuchi.	$\delta$ Ursæ Minoris SP.	Sept. 13.....69. 9. 4,84 15 4,44 17 5,21
$\epsilon$ Ursæ Minoris.	June 10.....77. 19. 8,79	Dec. 6.....3. 24. 26,95	* $R. 19^h. 20^m. 6^s$ .
May 26.....7. 42. 44,01	July 16 7,34 17 7,15	$\delta$ Ursæ Minoris SP. R.	Sept. 17.....62. 56. 25,65 21 27,32 22 28,53
June 21 44,61		Dec. 6.....3. 24. 28,46	

Piazzi XIX. 149.	Σ 2600.	Σ 2624.	Σ 2665.
Sept. 17.....53. 47. 28,39 21 27,45 22 27,72	Sept. 15.....67. 54. 42,75 16 42,62 17 43,65	Aug. 30.....54. 25. 8,15 Sept. 1 7,09 6 6,81	Sept. 15.....76. 7. 22,69 16 22,96 17 25,80
Σ 2556.	ψ Cygni.	Σ 2631.	Σ 2667. <i>sp.</i>
Sept. 17.....68. 6. 13,81 21 14,09 22 13,85	Sept. 16.....37. 58. 49,56 17 50,15 18 49,62	Oct. 5.....69. 21. 3,21 9 3,95 15 4,08	Oct. 2.....44. 51. 17,26 5 16,78
γ Aquilæ.	Σ 2606.	Σ 2635.	Σ 2667. <i>nf.</i>
Oct. 2.....79. 46. 9,85 15 10,29	Sept. 17.....57. 9. 7,14 18 7,03 24 5,93	Oct. 5.....82. 0. 43,89 9 44,52 15 45,32	Sept. 21.....44. 51. 10,59
γ Aquilæ R.	Σ 2609.	Piazzi XX. 26.	Σ 2666.
Oct. 2.....79. 46. 9,12 15 9,24	Sept. 6.....52. 19. 19,31 15 19,34 16 18,94	Sept. 10.....89. 36. 11,43 15 11,42 16 9,50	Sept. 21.....49. 45. 36,72 24 36,74
Σ 2576. <i>np.</i>	Σ 2610.	Σ 2643.	Oct. 2 37,66
Sept. 15.....56. 45. 39,01 16 37,91	Oct. 2.....54. 53. 32,80 5 32,98 9 33,62	Sept. 17.....93. 28. 1,43 18 1,41 21 1,51	Σ 2668.
Σ 2576. <i>nf.</i>	Σ 2613.	Σ 2651.	Sept. 17.....51. 5. 41,52 21 41,33 24 41,32
Sept. 13.....56. 45. 41,04	Oct. 2.....79. 41. 9,61 5 9,25 9 10,17	Oct. 9.....74. 19. 3,04 15 3,49 20 4,30	γ Cygni.
δ Cygni.	Σ 2611.	Σ 2653.	Sept. 6.....50. 14. 55,04 8 54,55
Sept. 17.....45. 15. 13,22 22 13,97 24 13,62	Sept. 18.....43. 4. 4,54 21 5,90 24 4,49	Sept. 6.....66. 14. 19,97 10 18,16 15 18,41	γ Cygni R.
δ Cygni R.	Σ 2616.	Σ 2658.	Σ 2681.
Sept. 22.....45. 15. 14,26 24 13,57	Sept. 15.....75. 51. 22,53 16 21,06 17 25,54	Oct. 2.....37. 21. 46,67 5 47,09 9 46,63	Oct. 2.....37. 5. 35,27 5 35,48 6 35,02
ε Aquilæ.	Σ 2618.	Σ 2659.	Piazzi XX. 177.
Sept. 15.....78. 34. 29,08 16 28,00 17 30,81	Oct. 5.....74. 58. 14,03 12 15,34 15 14,63	Sept. 10.....46. 50. 2,47 16 3,61 17 4,85	Sept. 6.....79. 16. 16,18 8 15,30 10 14,69
β Aquilæ.	Σ 2619.	* AL 20° 11' 57.	Σ 2695.
Oct. 2.....83. 59. 7,46 9 6,67 15 8,70	Sept. 18.....42. 10. 37,00 21 36,97 24 37,55	Sept. 16.....76. 6. 31,50 17 33,00	Oct. 2.....64. 43. 41,71 5 41,27 6 41,75
β Aquilæ R.			Σ 2702.
Oct. 2.....83. 59. 8,42 9 8,01 15 7,37			Sept. 30.....55. 22. 38,54 Oct. 2 38,59 5 37,60

$\alpha$ Delphini.	$\Sigma$ 2725.	$\Sigma$ 2757.	$\alpha$ Cephei R. <i>continued</i> .
Sept. 6.....74 . 38 . 41,28	Sept. 30.....74 . 40 . 17,04	Oct. 5.....38 . 13 . 54,36	Oct. 20.....28 . 5 . 10,68
Oct. 9 39,68	Oct. 2 19,39	6 54,16	21 9,72
	5 17,55	7 55,37	Nov. 6 10,52
$\alpha$ Delphini R.	$\gamma$ Delphini.	$\Sigma$ 2759.	24 11,36
Sept. 6.....74 . 38 . 40,76	Oct. 2.....74 . 26 . 38,63	Oct. 20.....58 . 10 . 46,20	Dec. 17 10,41
Oct. 9 41,70	5 39,45	21 46,90	$\Sigma$ 2789.
	6 38,45	23 45,63	Oct. 20.....37 . 41 . 43,69
$\Sigma$ 2708.	$\eta$ Cephei.	$\Sigma$ 2760.	21 43,67
Sept. 30.....51 . 54 . 44,15	Sept. 30.....28 . 46 . 38,17	Nov. 6.....56 . 30 . 4,11	Nov. 6 43,12
Oct. 2 43,64		8 4,03	$\beta$ Aquarii.
5 42,29	$\eta$ Cephei R.	18 3,78	Sept. 22.....96 . 15 . 60,60
$\alpha$ Cygni.	Sept. 30.....28 . 46 . 37,76	$\Sigma$ 2769.	23 61,16
Feb. 19.....45 . 17 . 5,14	$\eta$ Cephei SP.	Oct. 20.....68 . 11 . 21,50	Oct. 5 59,33
Mar. 5 4,40	Mar. 19.....28 . 46 . 37,73	21 21,10	7 59,79
July 17 4,18	24 38,26	Nov. 6 21,29	Dec. 17 60,77
Oct. 6 4,83	$\eta$ Cephei SP. R.	$\alpha$ Cephei.	$\beta$ Aquarii R.
Nov. 8 4,60	Mar. 19.....28 . 46 . 38,31	Feb. 19.....28 . 5 . 11,07	Sept. 22.....96 . 16 . 1,71
24 4,51	24 39,25	Mar. 10 11,12	23 2,09
25 3,98	$\Sigma$ 2738.	11 10,99	Oct. 5 2,42
Dec. 17 5,64	Oct. 20.....74 . 10 . 28,39	19 11,14	7 1,49
$\alpha$ Cygni R.	21 27,77	Sept. 1 11,51	Dec. 17 0,60
Feb. 19.....45 . 17 . 5,18	23 28,19	15 10,88	$\beta$ Cephei.
Mar. 5 7,12	Piazzì XX. 429.	Oct. 2 11,06	Sept. 1.....20 . 8 . 11,56
July 17 6,28	Oct. 5.....40 . 9 . 9,52	5 10,91	10 10,43
Oct. 6 6,59	6 10,09	6 11,16	15 11,02
Nov. 8 6,10	7 11,15	7 10,92	Oct. 5 10,80
24 5,98	$\Sigma$ 2747. <i>sp.</i>	11 11,06	7 11,93
25 5,74	Oct. 5.....52 . 57 . 35,94	18 11,83	11 10,64
Dec. 17 6,00	6 36,27	20 10,98	18 11,91
$\Sigma$ 2720. <i>sp.</i>	$\Sigma$ 2747. <i>nf.</i>	21 11,90	20 11,06
Oct. 19.....73 . 37 . 50,55	Oct. 11.....52 . 57 . 34,73	Nov. 6 10,28	21 11,71
$\Sigma$ 2720. <i>nf.</i>	$\Sigma$ 2750.	24 10,93	Dec. 17 12,32
Oct. 9.....73 . 37 . 27,38	Oct. 20.....77 . 54 . 24,98	Dec. 17 12,09	$\beta$ Cephei R.
11 26,18	21 24,86	$\alpha$ Cephei R.	Sept. 1.....20 . 8 . 10,70
$\Sigma$ 2723.	23 23,73	Feb. 19.....28 . 5 . 10,92	10 11,34
Oct. 9.....78 . 15 . 35,44	Oct. 20.....77 . 54 . 24,98	Mar. 10 11,86	15 11,17
11 34,68	21 24,86	11 10,81	Oct. 5 12,11
18 34,44	23 23,73	19 9,50	7 10,73
19 36,02		Sept. 1 10,68	11 11,22
		15 11,96	18 11,86
		Oct. 2 11,16	20 11,08
		5 11,03	21 11,39
		6 11,81	
		7 10,97	
		11 11,14	
		18 11,21	Dec. 17 9,51



$\Sigma$ 2813.	$\Sigma$ 2840.	$\Sigma$ 2902.	$\zeta$ Pegasi R. <i>continued.</i>
Oct. 11.....33. 14. 23,18 18 22,43 19 24,80	Oct. 20.....34. 56. 54,77 23 54,15 Nov. 8 54,70	Nov. 8.....45. 27. 10,29 10 10,36 12 9,93	Sept. 23.....79. 59. 47,19 30 48,01 Oct. 16 48,20 23 48,15 Nov. 8 47,32
$\Sigma$ 2815.	$\Sigma$ 2848.	$\Sigma$ 2905.	$\eta$ Pegasi.
Oct. 19.....33. 9. 13,59 20 13,93 21 13,69	Nov. 20.....84. 48. 50,36 24 49,48 25 50,30	Dec. 3.....75. 39. 19,13 10 17,85 11 17,97	Sept. 10.....60. 36. 28,50 13 28,78 16 28,62 17 29,30
Piazzi XXI. 248.	$\Sigma$ 2861.	37 Pegasi.	$\eta$ Pegasi R.
Oct. 7.....33. 13. 40,62 11 40,95 18 40,97	Oct. 23.....69. 38. 1,50 Nov. 6 1,80 10 1,98	Nov. 25.....86. 22. 25,19 Dec. 3 25,38 10 25,40	Sept. 10.....60. 36. 31,07 13 31,46 16 30,60 17 29,50
Piazzi XXI. 256.	Piazzi XXII. 11.	$\Sigma$ 2916.	Piazzi XXII. 219.
Oct. 7 33. 8. 16,96 11 17,23 18 17,40 19 17,39	Nov. 20.....31. 29. 3,14 24 2,77 25 3,48	Nov. 25.....49. 35. 44,88 Dec. 3 44,40 10 43,96	Nov. 25.....95. 3. 8,62 Dec. 3 8,32 10 8,47
$\epsilon$ Pegasi.	$\Sigma$ 2878.	A.S.C. 2697.	$\epsilon$ Cephei.
Sept. 22.....80. 51. 3,02 Oct. 3 1,56 Dec. 17 3,76	Nov. 25.....82. 48. 35,44 Dec. 3 35,50 10 34,96	Sept. 18.....90. 13. 11,83 22 12,80 23 12,32 Oct. 6 11,54 16 12,59 20 13,91 21 12,42 23 12,93	Sept. 2.....24. 38. 6,02 6 6,29 10 4,72 13 5,26 16 5,18 17 6,87
$\epsilon$ Pegasi R.	$\Sigma$ 2881.	$\eta$ Aquarii.	$\epsilon$ Cephei R.
Sept. 22.....80. 51. 2,70 Oct. 5 3,52 Dec. 17 2,66	Nov. 8.....61. 12. 45,77 10 46,74 12 46,10	Sept. 22.....90. 56. 5,57 23 5,66 Oct. 6 4,26 16 5,35 20 5,33 21 6,07 23 5,59	Sept. 2.....24. 38. 4,71 6 5,09 10 5,48 13 5,01 16 4,41 17 5,16
$\mu$ Cygni.	$\Sigma$ 2882.	$\zeta$ Pegasi.	$\Sigma$ 2958.
Oct. 18 61. 58. 18,28 19 20,87 20 20,55	Nov. 20.....53. 2. 25,90 24 26,58 25 26,44 Dec. 3 26,23	Sept. 18.....79. 59. 49,08 21 48,91 23 47,55 30 48,16 Oct. 16 48,12 23 47,81 Nov. 8 48,17	Nov. 25 78. 59. 57,24 Dec. 3 56,94 10 56,25
$\star$ $\beta$ L. 21 <sup>h</sup> . 45 <sup>m</sup> . 54 <sup>s</sup> .	$\Sigma$ 2889.	$\zeta$ Pegasi R.	$\alpha$ Pegasi.
Nov. 8 71. 28. 34,09 25 29,60	Nov. 10.....64. 31. 3,61 12 1,44 20 2,92	Sept. 18.....79. 59. 47,92 21 48,55	Sept. 11 75. 38. 53,88 Oct. 16 56,37 19 56,21 Nov. 8 54,69
$\Sigma$ 2834.	33 Pegasi.		
Oct. 20 71. 26. 4,33 Nov. 8 5,16 18 5,09 20 4,87	Nov. 8 69. 57. 11,16 10 11,41 12 10,57		

$\alpha$ Pegasi R.	Piazzi XXII. 306. <i>continued.</i>	$\gamma$ Cephei <i>continued.</i>	$\gamma$ Cephei R. <i>continued.</i>
Sept. 11..... <sup>°</sup> 75 . <sup>'</sup> 38 . <sup>"</sup> 55,83	Dec. 13..... <sup>°</sup> 58 . <sup>'</sup> 1 . <sup>"</sup> 56,64	Sept. 30..... <sup>°</sup> 13 . <sup>'</sup> 15 . <sup>"</sup> 18,49	Nov. 12..... <sup>°</sup> 13 . <sup>'</sup> 15 . <sup>"</sup> 16,80
Oct. 16                   55,47	$\Sigma$ 3013.	Nov. 12                   17,47	24                   15,92
19                   55,86		24                   18,15	Dec. 3                   16,33
Nov. 8                   55,37	Dec. 11.....74 . 14 . 40,23	Dec. 3                   17,79	11                   16,13
	13                   37,98	11                   17,15	21                   17,02
	17                   40,50	21                   16,48	$\Sigma$ 3062.
Piazzi XXII. 306.	$\gamma$ Cephei.	$\gamma$ Cephei R.	
Dec. 3.....58 . 1 . 57,19	Sept. 18.....13 . 15 . 18,58	Sept. 18.....13 . 15 . 16,80	Dec. 3.....32 . 26 . 59,71
11                   56,52		30                   16,36	8                   59,23
			10                   59,36

CATALOGUE of the CONCLUDED MEAN NORTH POLAR DISTANCES, JAN. 1, 1841;  
with the ANNUAL VARIATIONS.(The N.P.D. have been corrected for the discordance of Zenith Points, and the Error of the Assumed  
Co-latitude, in the manner explained in the Introduction.)

Name of Star.	Number of Obser- vations.	Approximate Mean R.A. Jan. 1, 1841.	Mean N.P.D. Jan. 1, 1841.	Annual Variation.	Name of Star.	Number of Obser- vations.	Approximate Mean R.A. Jan. 1, 1841.	Mean N.P.D. Jan. 1, 1841.	Annual Variation.
<i>α</i> Andromedæ .....	7	<i>h. m. s.</i> 0. 0. 11	61. 47. 14,73	-20,056	47 Geminorum. ....	3	<i>h. m. s.</i> 7. 1. 31	62. 53. 18,62	+5,319
<i>α</i> Andromedæ R. ....	7		14,58		Castor <i>nf.</i> .....	2	7. 24. 27	57. 46. 9,62	+7,227
<i>Σ</i> 1. <i>nf.</i> .....	3	0. 0. 37	53. 40. 6,86	-20,056	Castor R. ....	2		9,93	
<i>Σ</i> 4. <i>sp.</i> .....	3	0. 1. (43)	82. 25. 53,89	-20,055	Procyon. ....	1	7. 30. 59	84. 22. 20,52	+8,737
34 Piscium. <i>sp.</i> .....	3	0. 1. 52	79. 44. 21,74	-20,055	Procyon R. ....	1		20,68	
<i>γ</i> Pegasi. ....	4	0. 5. 3	75. 42. 2,55	-20,051	<i>c</i> Geminorum. ....	3	7. 34. 25	63. 50. 35,28	+8,031
<i>γ</i> Pegasi R. ....	4		1,77		<i>α</i> Geminorum. ....	3	7. 34. 50	65. 13. 35,36	+8,064
35 Piscium. <i>sp.</i> .....	3	0. 6. 48	82. 3. 44,07	-20,047	<i>α</i> <sup>1</sup> Cancri. ....	3	7. 51. 18	64. 10. 39,44	+9,362
<i>Σ</i> 19. <i>sp.</i> .....	1	0. 8. 26	54. 15. 10,51	-20,042	6 Cancri. ....	2	7. 53. 45	61. 45. 55,79	+9,551
38 Piscium. <i>nf.</i> .....	3	0. 9. 13	82. 0. 38,32	-20,040	<i>ζ</i> Cancri. <i>sp.</i> * .....	3	8. 3. 5	71. 52. 41,08	+10,261
<i>Σ</i> 24. <i>nf.</i> .....	1	0. 9. (48)	64. 44. 33,20	-20,037	<i>β</i> Cancri. ....	1	8. 7. 53	80. 19. 45,80	+10,619
<i>Σ</i> 25. ....	3	0. 10. 31	74. 53. 29,38	-20,035	<i>β</i> Cancri R. ....	1		45,88	
<i>Σ</i> 40. <i>nf.</i> .....	3	0. 26. 40	54. 2. 38,84	-19,920	<i>λ</i> Cancri. ....	3	8. 11. 4	65. 28. 55,42	+10,855
<i>α</i> Cassiopeiæ. ....	9	0. 31. 31	34. 20. 8,17	-19,806	<i>ν</i> Cancri <i>sp.</i> .....	3	8. 17. 12	64. 56. 54,11	+11,302
<i>α</i> Cassiopeiæ R. ....	9		8,24		* (Mag. 8). ....	2	8. 48. 16	68. 2. 33,57	+13,437
<i>α</i> Cassiopeiæ SP. ....	2		7,73		<i>α</i> Ursæ Majoris. ....	1	8. 52. 45	42. 13. 11,17	+13,726
<i>α</i> Cassiopeiæ SP. R. ....	2		8,84		<i>α</i> Ursæ Majoris R. ....	1		10,92	
53 Piscium. <i>nf.</i> .....	1	0. 31. 34	69. 26. 4,07	-19,866	* (Mag. 9). ....	2	8. 58. 37	68. 21. 18,22	+14,096
<i>Σ</i> 51. <i>sp.</i> .....	1	0. 35. 13	73. 30. 51,43	-19,819	* (Mag. 8, 9). ....	2	9. 3. 39	68. 40. 29,62	+14,406
65 Piscium. <i>sp.</i> .....	1	0. 41. 22	63. 9. 22,12	-19,750	A.S.C. 1132. ....	3	9. 11. 55	64. 9. 39,15	+14,899
<i>Σ</i> 63. <i>nf.</i> .....	1	0. 41. (52)	79. 2. 7,46	-19,722	* (Mag. 7). ....	3	9. 14. 48	68. 57. 37,57	+15,067
Polaris. ....	13	1. 2. 27	1. 32. 18,35	-19,313	<i>α</i> Leonis. ....	4	9. 19. 56	80. 15. 16,43	+15,366
Polaris R. ....	13		18,52		* (Mag. 9). ....	2	9. 21. 4	69. 50. 44,62	+15,423
Polaris SP. ....	15		18,36		<i>ν</i> Ursæ Majoris. ....	1	9. 39. 38	30. 13. 3,21	+16,410
Polaris SP. R. ....	13		18,41		<i>ν</i> Ursæ Majoris R. ....	1		3,27	
42 Ceti. ....	1	1. 11. 41	91. 20. 44,89	-19,083	<i>ν</i> Ursæ Majoris SP. ....	2		4,83	
* (Mag. 7, 8). ....	2	1. 24. 42	60. 25. 44,34	-18,702	<i>ν</i> Ursæ Maj. SP. R. ....	2		2,55	
<i>Σ</i> 162. ....	2	1. 39. 25	42. 53. 52,17	-18,198	<i>ν</i> Leonis. ....	3	9. 49. 40	76. 47. 57,04	+16,899
A.S.C. 193. <i>sp.</i> .....	2	1. 41. 22	68. 31. 1,45	-18,126	<i>η</i> Leonis. ....	3	9. 58. 39	72. 27. 51,36	+17,309
<i>Σ</i> 179. <i>sp.</i> .....	2	1. 43. 50	53. 27. 50,33	-18,032	Regulus. ....	3	9. 59. 54	77. 15. 29,47	+17,366
A.S.C. 203. ....	1	1. 47. 41	88. 56. 26,74	-17,882	Regulus R. ....	2		29,25	
<i>α</i> Arietis. ....	6	1. 58. 13	67. 17. 32,56	-17,445	<i>α</i> Ursæ Majoris. ....	1	10. 7. 29	46. 17. 39,71	+17,687
<i>α</i> Arietis R. ....	6		32,50		<i>α</i> Ursæ Majoris R. ....	1		39,68	
<i>α</i> Ceti. ....	2	2. 55. 59	86. 32. 17,43	-14,548	45 Leonis. ....	3	10. 19. 15	79. 25. 45,97	+18,149
<i>α</i> Ceti R. ....	2		17,08		<i>m</i> Ursæ Majoris. ....	1	10. 24. 52	32. 6. 3,57	+18,333
<i>α</i> Persei. ....	3	3. 13. 0	40. 42. 38,26	-13,352	<i>m</i> Ursæ Majoris R. ....	1		2,93	
<i>α</i> Persei R. ....	4		37,66		<i>Σ</i> 1447. <i>sp.</i> .....	3	10. 25. 3	65. 49. 53,47	+18,559
<i>c</i> Pleiadum. ....	3	3. 35. 45	66. 2. 12,36	-11,806	49 Leonis. <i>sp.</i> .....	3	10. 26. 41	80. 31. 47,94	+18,416
<i>d</i> Pleiadum. ....	2	3. 36. 54	66. 33. 8,34	-11,725	35 Sextantis. <i>nf.</i> .....	3	10. 35. 5	84. 25. 11,08	+18,595
<i>Σ</i> 520. ....	2	4. 8. 47	67. 35. 18,53	-9,355	<i>l</i> Leonis. ....	2	10. 40. 54	78. 36. 54,76	+18,873
Aldebaran. ....	4	4. 26. 48	73. 48. 57,94	-7,930	<i>ν</i> Hydriæ et Crat. ....	2	10. 41. 47	105. 21. 45,93	+18,900
Aldebaran R. ....	4		58,80		<i>ν</i> Hydriæ et Crat. R. ....	2		48,06	
A.S.C. 552. SP. ....	2	4. 38. 17	23. 26. 17,42	-7,000	54 Leonis. <i>sp.</i> .....	2	10. 47. 0	64. 24. 12,52	+19,047
A.S.C. 552. SP. R. ....	2		15,61		<i>α</i> Ursæ Majoris. ....	10	10. 53. 52	27. 23. 31,87	+19,227
<i>δ</i> Tauri. ....	2	4. 48. 26	65. 12. 5,21	-6,162	<i>α</i> Ursæ Majoris R. ....	10		51,66	
Capella. ....	5	5. 4. 57	44. 10. 18,58	-4,768	<i>α</i> Ursæ Majoris SP. ....	9		31,33	
Capella R. ....	5		17,82		<i>α</i> Ursæ Maj. SP. R. ....	9		31,46	
14 Aurigæ <i>nf.</i> .....	3	5. 5. 4	57. 30. 12,20	-4,761	* (Mag. 8). ....	3	10. 53. 58	80. 16. 35,98	+19,249
<i>β</i> Tauri. ....	3	5. 16. 15	61. 32. 0,94	-3,803	<i>χ</i> Leonis. ....	2	10. 56. 40	81. 48. 20,54	+19,298
<i>β</i> Tauri R. ....	3		0,45		* (Mag. 7, 8). ....	3	10. 57. 54	82. 0. 18,44	+19,324
<i>θ</i> Orionis (1st star) .....	3	5. 27. 27	93. 29. 50,54	-2,839	<i>Σ</i> 1511. <i>nf.</i> .....	3	10. 58. 52	78. 13. 48,75	+19,347
C Tauri. ....	2	5. 43. 20	62. 25. 55,25	-1,457	<i>z</i> Leonis. ....	1	11. 5. 39	68. 36. 21,20	+19,495
<i>α</i> Aurigæ. ....	2	6. 5. 15	69. 27. 1,02	+0,459	<i>z</i> Leonis R. ....	1		21,60	
* (Mag. 6, 7). ....	2	6. 24. 7	33. 1. 25,45	+2,107	A.S.C. 1322. ....	3	11. 5. 46	81. 4. 13,05	+19,497
<i>Σ</i> 941. <i>sp.</i> .....	2	6. 27. 25	48. 17. 27,19	+2,394	<i>φ</i> Leonis. ....	3	11. 8. 35	92. 46. 59,77	+19,553
* (Mag. 8). ....	2	6. 30. 0	35. 58. 52,12	+2,684	<i>q</i> Leonis. ....	1	11. 9. 6	87. 6. 58,88	+19,563
Piazzi VI. 301. <i>sp.</i> .....	3	6. 53. 1	57. 0. 43,78	+4,598	<i>Σ</i> 1529. <i>nf.</i> .....	3	11. 11. 17	90. 46. 46,12	+19,604

\* The two close stars observed as a single star.

CATALOGUE of the Concluded Mean North Polar Distances, &c. *continued.*

Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1841.	Mean N.P.D. Jan. 1, 1841.	Annual Variation.	Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1841.	Mean N.P.D. Jan. 1, 1841.	Annual Variation.
$\sigma$ Leonis.....	3	<i>h. m. s.</i> 11. 12. 56	<i>° ' "</i> 83. 6. 1.00	+19,635	$\Sigma$ 1858. <i>sp.</i> .....	3	<i>h. m. s.</i> 14. 27. 4	<i>° ' "</i> 53. 42. 54.97	+16,066
83 Leonis. <i>np.</i> .....	3	11. 18. 42	86. 7. 16.30	+19,731	$\pi$ Bootis. <i>np.</i> .....	2	14. 33. 15	72. 53. 47.03	+15,737
$\Sigma$ 1541. <i>sp.</i> .....	2	11. 18. 55	42. 49. 44.85	+19,734	$\Sigma$ 1870. <i>nf.</i> .....	1	14. 35. 7	81. 14. 34.07	+15,635
57 Ursæ Majoris. <i>sp.</i> .....	1	11. 20. 29	49. 47. 18.04	+19,758	$\Sigma$ 1873. <i>np.</i> .....	2	14. 36. 59	81. 37. 20.91	+15,532
$\lambda$ Draconis.....	1	11. 21. 54	19. 47. 33.04	+19,779	$\epsilon$ Bootis. <i>sf.</i> .....	2	14. 38. 3	62. 15. 6.69	+15,472
$\lambda$ Draconis R.....	1		31.55		$\epsilon$ Bootis R.....	2		6.69	
$\lambda$ Draconis SP.....	3		31.77		$\Sigma$ 1878. <i>sf.</i> .....	3	14. 38. 6	28. 3. 30.49	+15,470
$\lambda$ Draconis SP. R.....	3		32.44		$\Sigma$ 1882. <i>sp.</i> .....	3	14. 40. 8	28. 13. 37.82	+15,356
* (Mag. 8).....	3	11. 27. 45	82. 21. 11.69	+19,857	$\Sigma$ 1886. <i>nf.</i> .....	3	14. 43. 21	79. 37. 6.91	+15,173
$\Sigma$ 1553. <i>np.</i> .....	3	11. 27. 52	32. 58. 53.72	+19,859	$\xi$ Bootis. <i>sf.</i> .....	3	14. 44. 4	70. 14. 11.39	+15,133
* (Mag. 8).....	3	11. 29. 7	82. 51. 3.45	+19,874	39 Bootis. <i>sp.</i> .....	3	14. 44. 17	40. 37. 22.80	+15,120
Piazzi XI. 126. <i>sf.</i> .....	3	11. 30. 17	91. 33. 23.12	+19,887	$\beta$ Ursæ Minoris.....	4	14. 51. 14	15. 11. 42.01	+14,713
$\Sigma$ 1561. <i>nf.</i> .....	1	11. 30. 21	44. 0. 43.72	+19,888	$\beta$ Ursæ Minoris R.....	4		40.03	
$\nu$ Virginis.....	1	11. 37. 41	82. 34. 47.40	+19,960	$\beta$ Ursæ Minoris SP.....	2		40.95	
* (Mag. 9, 10).....	1	11. 38. (34)	83. 14. 22.40	+19,968	$\beta$ Ursæ Min. SP.R.....	2		41.15	
$\beta$ Leonis.....	3	11. 40. 57	74. 32. 20.23	+19,987	$\Sigma$ 1895. <i>sp.</i> .....	3	14. 51. 24	49. 11. 49.55	+14,703
$\beta$ Leonis R.....	3		22.24		$\Sigma$ 1896. <i>sf.</i> .....	2	14. 52. 38	45. 18. 54.83	+14,630
$\gamma$ Ursæ Majoris.....	5	11. 45. 26	35. 25. 15.50	+20,015	$\Sigma$ 1904. <i>sf.</i> .....	3	14. 56. 13	83. 52. 47.91	+14,414
$\gamma$ Ursæ Majoris R.....	5		15.55		44 Bootis. <i>nf.</i> .....	3	14. 58. 33	41. 43. 26.38	+14,271
$\gamma$ Ursæ Majoris SP.....	4		16.01		Piazzi XIV. 279. <i>nf.</i> .....	3	14. 59. 52	80. 9. 33.32	+14,190
$\gamma$ Ursæ Maj. SP. R.....	4		16.17		* (Mag. 7, 8).....	2	15. 6. 56	97. 14. 9.02	+13,746
* (Mag. 9).....	2	11. 54. 17	84. 53. 39.29	+20,050	$\Sigma$ 1931. <i>np.</i> .....	3	15. 11. 5	78. 59. 17.29	+13,480
2 Comæ Beren. <i>nf.</i> .....	3	11. 56. 8	67. 39. 17.69	+20,053	$\Sigma$ 1934. <i>nf.</i> .....	1	15. 11. 48	45. 37. 7.83	+13,433
* (Mag. 7).....	3	11. 59. 25	84. 36. 3.41	+20,056	$\eta$ Coronæ Borealis.....	3	15. 16. 38	59. 8. 3.54	+13,116
$\Sigma$ 1608. <i>nf.</i> .....	1	12. 3. 32	35. 41. 17.38	+20,053	$\Sigma$ 1943. <i>np.</i> .....	1	15. 18. 54	84. 4. 18.81	+12,965
2 Canum Venat. <i>nf.</i> .....	3	12. 8. 9	48. 27. 14.82	+20,043	A.S.C. 1752.....	1	15. 21. 12	106. 42. 8.43	+12,811
$\Sigma$ 1632. <i>nf.</i> .....	3	12. 12. 18	51. 12. 51.84	+20,027	$\Sigma$ 1950. <i>np.</i> .....	2	15. 23. 10	63. 56. 31.47	+12,678
$\Sigma$ 1633. <i>sp.</i> .....	3	12. 12. 40	62. 3. 29.30	+20,025	$\Sigma$ 1953. <i>nf.</i> .....	1	15. 25. 6	83. 56. 59.76	+12,547
$\Sigma$ 1653. <i>np.</i> .....	3	12. 25. 31	57. 4. 47.05	+19,932	$\alpha$ Coronæ Borealis.....	3	15. 27. 58	62. 44. 45.68	+12,349
$\lambda$ Draconis.....	1	12. 26. 38	19. 20. 3.62	+19,920	$\alpha$ Coron. Borealis R.....	3		45.82	
$\lambda$ Draconis R.....	1		3.18		$\chi$ Libræ.....	3	15. 30. 54	113. 17. 44.00	+12,147
$\lambda$ Draconis SP.....	2		4.60		4 Scorpii.....	2	15. 45. 54	115. 47. 27.42	+11,077
$\lambda$ Draconis SP. R.....	2		4.51		$\Sigma$ 1985. <i>sf.</i> .....	3	15. 47. 41	91. 41. 29.70	+10,946
$\Sigma$ 1661. <i>sp.</i> .....	3	12. 27. 59	77. 42. 53.40	+19,906	$\Sigma$ 1988. <i>sp.</i> .....	3	15. 49. 18	77. 3. 21.63	+10,828
Piazzi XII. 201.....	1	12. 44. 3	69. 57. 57.05	+19,687	$\zeta$ Ursæ Minoris.....	2	15. 49. 53	11. 43. 12.00	+10,786
Piazzi XII. 202.....	2	12. 44. 3	69. 57. 42.46	+19,687	$\zeta$ Ursæ Minoris R.....	2		9.47	
42 Virginis (?).....	2	12. 47. 13	81. 17. 52.80	+19,632	$\zeta$ Ursæ Minoris SP.....	1		11.04	
$\Sigma$ 1690. <i>np.</i> .....	3	12. 48. 3	94. 0. 4.93	+19,616	$\zeta$ Ursæ Min. SP. R.....	1		10.69	
$\Sigma$ 1727. <i>sf.</i> .....	2	13. 2. 21	57. 46. 56.15	+19,131	A.S.C. 1810.....	3	15. 58. 27	115. 53. 38.59	+10,145
53 Virginis.....	2	13. 3. 37	105. 20. 20.26	+19,288	49 Serpentis. <i>np.</i> .....	3	16. 5. 54	76. 2. 34.27	+9,577
* (Mag. 7, 8).....	3	13. 8. 42	71. 51. 30.24	+19,162	$\sigma$ Coronæ Borealis.....	3	16. 8. 44	55. 44. 5.22	+9,359
Spica.....	2	13. 16. 50	100. 19. 45.09	+18,939	$\epsilon$ Ophiuchi.....	1	16. 9. 55	94. 17. 56.74	+9,267
Spica R.....	2		45.12		$\epsilon$ Ophiuchi R.....	1		58.27	
$\Sigma$ 1751. <i>sp.</i> .....	1	13. 22. 44	79. 51. 28.86	+18,763	Piazzi XVI. 87.....	1	16. 20. 20	114. 47. 21.97	+8,449
* (Mag. 7, 8).....	3	13. 25. 58	97. 47. 59.51	+18,661	$\eta$ Draconis.....	2	16. 21. 51	28. 7. 27.66	+8,328
$\Sigma$ 1760. <i>sp.</i> .....	1	13. 26. 57	62. 54. 10.23	+18,630	$\eta$ Draconis R.....	2		28.27	
1 Bootis. <i>np.</i> .....	3	13. 33. 5	69. 14. 15.89	+18,424	$\Sigma$ 2052. <i>np.</i> .....	2	16. 21. 53	71. 14. 49.12	+8,326
84 Virginis. <i>nf.</i> .....	1	13. 35. 4	85. 39. 18.31	+18,355	$\lambda$ Ophiuchi. <i>sp.</i> .....	2	16. 22. 54	87. 39. 45.44	+8,245
$\eta$ Ursæ Majoris.....	6	13. 41. 16	39. 53. 26.92	+18,129	$\Sigma$ 2087. <i>np.</i> .....	1	16. 35. 54	66. 1. 37.21	+7,196
$\eta$ Ursæ Majoris R.....	6		27.92		1 Ophiuchi.....	3	16. 37. 25	88. 40. 56.55	+7,071
$\Sigma$ 1785. <i>np.</i> .....	2	13. 41. 50	62. 13. 20.92	+18,108	$\Sigma$ 2104. <i>sp.</i> .....	3	16. 43. 0	53. 47. 46.09	+6,612
$\eta$ Bootis.....	3	13. 47. 7	70. 48. 9.21	+17,904	21 Ophiuchi.....	3	16. 43. 22	88. 30. 26.42	+6,582
$\eta$ Bootis R.....	3		8.64		* (Mag. 8, 9).....	1	16. 45. 18	86. 42. 35.90	+6,422
$\Sigma$ 1790. <i>sp.</i> .....	3	13. 47. 50	93. 50. 10.05	+17,876	30 Ophiuchi.....	3	16. 52. 41	93. 58. 41.42	+5,807
Piazzi XIII. 277. <i>sp.</i> .....	3	13. 53. 6	36. 7. 8.71	+17,663	$\epsilon$ Ursæ Minoris.....	8	17. 2. 29	7. 42. 42.60	+4,985
$\alpha$ Draconis.....	4	14. 0. 4	24. 51. 45.77	+17,366	$\epsilon$ Ursæ Minoris R.....	8		42.58	
$\alpha$ Draconis R.....	4		44.68		$\alpha$ Herculis. <i>np.</i> .....	7	17. 7. 24	75. 25. 24.22	+4,561
$\alpha$ Draconis SP.....	3		44.39		$\alpha$ Herculis R.....	6		24.01	
$\alpha$ Draconis SP. R.....	3		44.77		41 Ophiuchi.....	1	17. 8. 27	90. 15. 36.00	+4,473
$\Sigma$ 1801. <i>sp.</i> .....	3	14. 0. 50	68. 2. 47.75	+17,332	$\Sigma$ 2178. <i>np.</i> .....	2	17. 23. 47	54. 55. 57.01	+3,156
$\lambda$ Bootis. <i>nf.</i> .....	4	14. 7. 47	37. 27. 51.10	+17,018	$\alpha$ Ophiuchi.....	3	17. 27. 33	77. 19. 7.86	+2,828
Arcturus.....	7	14. 8. 25	69. 59. 12.41	+18,947	$\alpha$ Ophiuchi R.....	3		8.22	
Arcturus R.....	7		12.14		A.S.C. 2042.....	1	17. 38. 51	121. 38. 24.48	+1,848
$\Sigma$ 1825. <i>nf.</i> .....	3	14. 9. 9	69. 7. 59.01	+16,955	$\Sigma$ 2213. <i>sf.</i> .....	2	17. 38. 51	58. 47. 52.06	+1,848
$\nu$ Virginis.....	2	14. 10. 31	102. 38. 8.24	+16,890	A.S.C. 2044.....	2	17. 39. 3	120. 32. 4.03	+1,831
$\Sigma$ 1830. <i>nf.</i> .....	3	14. 10. 36	32. 35. 14.03	+16,887	* (Mag. 9, 10).....	2	17. 46. 11	48. 9. 57.23	+1,208
* (Mag. 7).....	3	14. 10. 52	32. 34. 1.68	+16,874	* (Mag. 8).....	2	17. 46. 12	48. 11. 44.48	+1,208
$\Sigma$ 1831. <i>np.</i> .....	4	14. 11. 2	32. 32. 54.74	+16,866	$\delta$ Ursæ Minoris.....	5	18. 23. 56	3. 24. 27.63	-2,049
$\Sigma$ 1838. <i>np.</i> .....	3	14. 16. 22	78. 1. 52.74	+16,609	$\delta$ Ursæ Minoris R.....	5		28.12	

CATALOGUE of the Concluded Mean North Polar Distances, &c. *continued.*

Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1841.	Mean N.P.D. Jan. 1, 1841.	Annual Variation.	Name of Star.	Number of Observations.	Approximate Mean R.A. Jan. 1, 1841.	Mean N.P.D. Jan. 1, 1841.	Annual Variation.
$\delta$ Ursæ Minoris SP.	1	h. m. s. 18. 23. 36	" 3. 24. 27.36	-2.049	$\eta$ Cephei	1	h. m. s. 20. 42. 1	" 28. 46. 37.94	-13.026
$\delta$ Ursæ Min. SP. R.	1		27.87		$\eta$ Cephei R.	1		38.17	
$\alpha$ Lyrae	13	18. 31. 33	51. 21. 37.20	-2.754	$\eta$ Cephei SP.	2		37.82	
$\alpha$ Lyrae R.	13		37.05		$\eta$ Cephei SP. R.	2		38.78	
$\beta$ Lyrae	3	18. 44. 13	56. 49. 4.33	-3.847	$\Sigma$ 2738. <i>nf.</i>	3	20. 51. 8	74. 10. 28.85	-13.622
$\beta$ Lyrae R.	3		3.23		Piazzi XX. 429. <i>sp.</i>	3	20. 53. 24	40. 9. 10.47	-13.767
$\Sigma$ 2523. <i>sp.</i>	3	19. 19. 56	60. 9. 5.31	-6.854	$\Sigma$ 2747. <i>{sp. nf.}</i>	2	$\{20. 56. 9\}$	52. 57. 36.74	-13.942
* (Mag. 8)	3	19. 20. 6	62. 56. 27.81	-6.868	$\Sigma$ 2750. <i>sf.</i>	3	20. 57. 26	77. 54. 24.61	-14.022
Piazzi XIX. 149. <i>sp.</i>	3	19. 21. 58	53. 47. 28.50	-7.021	$\Sigma$ 2757. <i>sf.</i>	3	20. 59. 37	38. 13. 54.76	-14.158
$\Sigma$ 2556.	3	19. 32. 36	68. 6. 14.43	-7.885	$\Sigma$ 2759. <i>sf.</i>	3	20. 59. 52	58. 10. 46.92	-14.173
$\gamma$ Aquilæ	2	19. 38. 42	79. 46. 10.10	-8.375	$\Sigma$ 2760. <i>nf.</i>	3	21. 0. 17	56. 30. 4.64	-14.199
$\gamma$ Aquilæ R.	2		9.33		$\Sigma$ 2769. <i>sf.</i>	3	21. 3. 22	68. 11. 21.81	-14.388
$\Sigma$ 2576. <i>{sp. sf.}</i>	2	$\{19. 39. 31\}$	56. 45. 39.13	-8.438	$\alpha$ Cephei	17	21. 14. 47	28. 5. 10.92	-15.066
$\delta$ Cygni. <i>sp.</i>	1		56. 45. 41.71	-8.438	$\beta$ Cephei R.	17		11.36	
$\delta$ Cygni R.	2	19. 40. 0	15. 15. 14.06	-8.476	$\Sigma$ 2789. <i>sp.</i>	3	21. 14. 51	37. 41. 43.60	-15.070
$\alpha$ Aquilæ	3	19. 41. 12	78. 34. 29.37	-8.571	$\beta$ Aquarii	5	21. 23. 11	96. 16. 0.88	-15.543
$\beta$ Aquilæ	3	19. 47. 30	83. 59. 7.70	-8.528	$\beta$ Aquarii R.	5		1.29	
$\beta$ Aquilæ R.	3		7.99		$\beta$ Cephei	10	21. 26. 35	20. 8. 10.90	-15.728
$\Sigma$ 2600. <i>sp.</i>	3	19. 48. (27)	67. 54. 43.53	-9.140	$\beta$ Cephei R.	10		11.73	
$\psi$ Cygni. <i>nf.</i>	3	19. 51. 31	37. 58. 49.90	-9.378	$\Sigma$ 2813. <i>sp.</i>	3	21. 31. 9	33. 14. 23.10	-15.972
$\Sigma$ 2606.	3	19. 52. 24	57. 9. 7.37	-9.447	$\Sigma$ 2815. <i>sp.</i>	3	21. 32. 47	33. 9. 13.66	-16.058
$\Sigma$ 2609. <i>sp.</i>	3	19. 52. 50	52. 19. 19.83	-9.480	Piazzi XXI. 248*	3	21. 34. 2	33. 13. 40.78	-16.124
$\Sigma$ 2610. <i>sp.</i>	3	19. 53. 10	54. 53. 35.80	-9.506	Piazzi XXI. 256. <i>sp.</i>	4	21. 35. 25	33. 8. 17.17	-16.195
$\Sigma$ 2613. <i>sp.</i>	3	19. 53. 52	79. 41. 9.71	-9.560	$\epsilon$ Pegasi	3	21. 36. 23	80. 51. 2.82	-16.246
$\Sigma$ 2611. <i>sp.</i>	3	19. 54. 3	43. 4. 5.33	-9.574	$\epsilon$ Pegasi R.	3		3.10	
$\Sigma$ 2616. <i>nf.</i>	3	19. 55. 25	75. 51. 23.19	-9.679	$\alpha$ Cygni. <i>sp.</i>	3	21. 37. 2	61. 58. 20.55	-16.279
$\Sigma$ 2618. <i>sp.</i>	3	19. 56. 9	74. 58. 14.18	-9.735	* (Mag. 9, 10) <i>sp.</i>	2	21. 43. 54	71. 28. 32.22	-16.622
$\Sigma$ 2619. <i>sp.</i>	3	19. 56. 20	42. 10. 37.48	-9.740	$\Sigma$ 2834. <i>sf.</i>	4	21. 44. 12	71. 26. 5.24	-16.637
$\Sigma$ 2624. <i>sp.</i>	3	19. 57. 33	54. 25. 8.01	-9.842	$\Sigma$ 2840. <i>nf.</i>	3	21. 46. 38	34. 56. 54.53	-16.755
$\Sigma$ 2631. <i>sf.</i>	3	20. 0. 15	69. 21. 4.22	-10.047	$\Sigma$ 2848. <i>sp.</i>	3	21. 50. 4	84. 18. 50.18	-16.918
$\Sigma$ 2635. <i>sp.</i>	3	20. 2. 26	82. 0. 44.64	-10.212	$\Sigma$ 2861. <i>nf.</i>	3	21. 58. 32	69. 58. 2.21	-17.305
Piazzi XX. 26. <i>sp.</i>	3	20. 4. 28	69. 36. 11.12	-10.365	Piazzi XXII. 11.	3	22. 3. 15	31. 29. 2.99	-17.509
$\Sigma$ 2643. <i>sp.</i>	3	20. 4. 29	93. 28. 1.93	-10.366	$\Sigma$ 2878. <i>sp.</i>	3	22. 6. 34	82. 48. 35.37	-17.649
$\Sigma$ 2631.	3	20. 6. 28	74. 19. 3.82	-10.514	$\Sigma$ 2881.	3	22. 7. 20	61. 12. 46.86	-17.681
$\Sigma$ 2633. <i>nf.</i>	3	20. 6. 51	66. 14. 19.42	-10.542	$\Sigma$ 2882. <i>sp.</i>	4	22. 7. 21	53. 2. 26.93	-17.682
$\Sigma$ 2638. <i>sp.</i>	3	20. 9. 27	37. 21. 46.89	-10.735	$\Sigma$ 2889. <i>nf.</i>	3	22. 8. 58	64. 31. 3.28	-17.718
$\Sigma$ 2659. <i>nf.</i>	3	20. 10. 20	46. 50. 4.14	-10.801	33 Pegasi. <i>nf</i> or <i>sp.</i>	3	22. 16. 1	69. 57. 11.50	-18.027
* (Mag. 6, 7)	2	20. 11. 45	76. 6. 32.40	-10.905	$\Sigma$ 2902. <i>sp.</i> or <i>sp.</i>	3	22. 16. 54	45. 27. 10.65	-18.061
$\Sigma$ 2655. <i>sp.</i>	3	20. 11. 57	76. 7. 23.97	-10.919	$\Sigma$ 2905. <i>sp.</i>	3	22. 19. 26	75. 39. 18.48	-18.156
$\Sigma$ 2667. <i>{sp. nf.}</i>	2	$\{20. 12. 21\}$	44. 51. 17.46	-10.949	37 Pegasi. <i>sp.</i>	3	22. 21. 56	86. 22. 25.51	-18.247
$\Sigma$ 2666. <i>nf.</i>	1		44. 51. 11.03	-10.949	$\Sigma$ 2916. <i>sf.</i>	3	22. 24. 24	49. 35. 44.99	-18.336
$\Sigma$ 2668. <i>sf.</i>	3	20. 12. 29	49. 45. 37.62	-10.958	A.S.C. 2697	8	22. 26. 28	90. 13. 12.91	-18.409
$\gamma$ Cygni	2	20. 14. 30	51. 5. 42.00	-11.106	$\eta$ Aquarii	7	22. 27. 11	90. 56. 5.79	-18.433
$\gamma$ Cygni R.	2	20. 16. 31	50. 14. 55.39	-11.253	$\zeta$ Pegasi	7	22. 33. 32	79. 59. 48.28	-18.646
$\Sigma$ 2681. <i>nf.</i>	3		56.08		$\zeta$ Pegasi R.	7		48.07	
Piazzi XX. 177	3	20. 18. 32	37. 5. 35.34	-11.398	$\eta$ Pegasi	4	22. 35. 33	60. 36. 29.47	-18.710
$\Sigma$ 2693. <i>sp.</i>	3	20. 23. 37	79. 16. 15.43	-11.761	$\eta$ Pegasi R.	4		30.17	
$\Sigma$ 2702. <i>sp.</i>	3	20. 25. 10	64. 43. 42.19	-11.871	Piazzi XXII. 219. <i>sp.</i>	3	22. 39. 38	95. 3. 9.00	-18.836
$\alpha$ Delphini	2	20. 29. 23	55. 22. 38.91	-12.166	$\epsilon$ Cephei	6	22. 44. 1	24. 38. 5.36	-18.964
$\alpha$ Delphini R.	2	20. 32. 15	74. 58. 40.68	-12.353	$\epsilon$ Cephei R.	6		5.52	
$\Sigma$ 2708. <i>sf.</i>	3		41.21		$\Sigma$ 2958. <i>sp.</i>	3	22. 48. 75	78. 59. 59.86	-19.099
$\alpha$ Cygni	8	20. 32. 40	51. 54. 43.98	-12.393	$\alpha$ Pegasi	4	22. 56. 51	75. 38. 55.45	-19.300
$\alpha$ Cygni R.	8	20. 36. 1	45. 17. 5.12	-12.623	$\alpha$ Pegasi R.	4		55.65	
$\Sigma$ 2720. <i>{sp. nf.}</i>	1	$\{20. 36. 8\}$	73. 37. 30.81	-12.630	Piazzi XXI. 309. <i>sp.</i>	3	22. 59. 52	58. 1. 57.46	-19.370
$\Sigma$ 2723. <i>sp.</i>	6		73. 37. 27.04	-12.630	$\Sigma$ 3013. <i>nf</i> or <i>sf.</i>	3	23. 19. 37	74. 14. 39.79	-19.745
$\Sigma$ 2725. <i>sf.</i>	3	20. 37. 20	78. 15. 35.22	-12.712	$\gamma$ Cephei	7	23. 52. 53	13. 15. 17.20	-19.916
$\gamma$ Delphini. <i>sp.</i>	3	20. 39. 17	74. 26. 39.05	-12.844	$\gamma$ Cephei R.	7		17.19	
					$\Sigma$ 3062. <i>sp.</i>	3	23. 57. 59	82. 26. 59.53	-20.055

\* The brightest of a triple star.



CONCLUDED

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES

OF

VESTA, PALLAS, AND CERES,

OBSERVED IN THE YEAR 1841,

COMPARED WITH THE RIGHT ASCENSIONS AND NORTH POLAR DISTANCES  
INTERPOLATED FROM THE NAUTICAL ALMANAC;

WITH THE

GREENWICH MEAN SOLAR TIMES OF OBSERVATION.



## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF VESTA.

Greenwich Mean Solar Time of Transit.	R.A. from Observation.	Seconds of Tabular R.A.	Error of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Error of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ' "	"	"
Sept. 30. 13. 41. 55,2	2. 20. 48,11	48,84	+ 0,73	87. 50. 29,66	36,21	+ 6,55
Oct. 2. 13. 32. 37,6	2. 19. 22,10	22,77	+ 0,67	88. 1. 25,51	32,31	+ 6,80
6. 13. 13. 47,1	2. 16. 14,77	15,48	+ 0,71	88. 23. 22,72	28,51	+ 5,79
12. 12. 44. 59,5	2. 11. 1,77	2,60	+ 0,83	88. 55. 36,17	43,91	+ 7,74
15. 12. 30. 24,8	2. 8. 14,33	15,18	+ 0,85	89. 11. 3,14	9,22	+ 6,08
16. 12. 25. 32,3	2. 7. 17,55	18,21	+ 0,66	89. 16. 1,37	8,52	+ 7,15
19. 12. 10. 51,5	2. 4. 24,02	24,76	+ 0,74	89. 30. 25,94	32,72	+ 6,78
21. 12. 1. 2,9	2. 2. 26,96	27,77	+ 0,81	89. 39. 30,18	36,73	+ 6,55
25. 11. 41. 25,4	1. 58. 32,42	33,15	+ 0,73	89. 56. 6,20	14,74	+ 8,54
Nov. 2. 11. 2. 23,3	1. 50. 56,29	57,04	+ 0,75	90. 22. 12,96	21,56	+ 8,60
6. 10. 43. 6,8	1. 47. 22,89	23,82	+ 0,93	90. 31. 11,69	18,67	+ 6,98
11. 10. 19. 22,9	1. 43. 17,90	18,75	+ 0,85	90. 38. 6,82	15,28	+ 8,46
12. 10. 14. 41,7	1. 42. 32,51	33,13	+ 0,62	90. 38. 56,03	63,39	+ 7,36
16. 9. 56. 8,7	1. 39. 42,62	43,50	+ 0,88	90. 40. 8,96	16,70	+ 7,74
18. 9. 47. 0,9	1. 38. 26,46	26,95	+ 0,49	90. 39. 32,07	41,51	+ 9,44

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF PALLAS.

Aug. 26. 12. 23. 8,1	22. 43. 48,78	54,72	+ 5,94			
27. 12. 18. 27,7	22. 43. 4,14	10,25	+ 6,11			
Sept. 2. 11. 50. 22,3	22. 38. 33,44	39,42	+ 5,98	86. 53. 73,05	38,70	- 34,35
6. 11. 31. 37,8	22. 35. 32,10	38,15	+ 6,05	87. 44. 35,53	2,59	- 32,94
8. 11. 22. 16,6	22. 34. 2,47	8,31	+ 5,84			
10. 11. 12. 56,0	22. 32. 33,40	39,48	+ 6,08	88. 35. 73,90	40,39	- 33,51
11. 11. 8. 16,3				88. 48. 76,11	42,69	- 33,42
13. 10. 58. 58,1	22. 30. 22,89	28,89	+ 6,00	89. 14. 87,57	53,28	- 34,29
16. 10. 45. 4,5	22. 28. 16,66	22,55	+ 5,89	89. 54. 49,47	16,48	- 32,99
17. 10. 40. 27,9	22. 27. 35,87	41,60	+ 5,73	90. 7. 57,82	24,18	- 33,64
18. 10. 35. 51,7	22. 26. 55,43	61,28	+ 5,85	90. 20. 65,25	30,88	- 34,37
21. 10. 22. 7,6	22. 24. 58,80	64,58	+ 5,78	90. 59. 74,55	40,79	- 33,76
22. 10. 17. 34,6	22. 24. 21,54	27,22	+ 5,68	91. 12. 72,75	38,99	- 33,76
23. 10. 13. 2,2	22. 23. 44,99	50,69	+ 5,70	91. 25. 67,15	33,99	- 33,16
30. 9. 41. 41,4	22. 19. 54,92	60,66	+ 5,74	92. 53. 83,43	52,10	- 31,33

## RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF CERES.

Sept. 25. 13. 29. 29,4	1. 48. 37,50	42,91	+ 5,41	94. 1. 81,97	46,32	- 35,65
30. 13. 6. 16,5	1. 45. 3,64	9,03	+ 5,39	94. 24. 94,58	57,83	- 36,75
Oct. 2. 12. 56. 52,8	1. 43. 31,48	37,31	+ 5,83	94. 33. 93,82	57,13	- 36,69
6. 12. 37. 57,6	1. 40. 19,32	23,14	+ 5,82	94. 51. 47,23	11,33	- 35,90
12. 12. 9. 18,5	1. 35. 14,93	20,70	+ 5,77	95. 14. 64,62	29,84	- 34,78
16. 11. 50. 6,9	1. 31. 46,36	51,95	+ 5,59	95. 27. 84,04	48,15	- 35,89
19. 11. 35. 42,5	1. 29. 9,23	14,97	+ 5,74	95. 36. 58,71	22,26	- 36,45
21. 11. 26. 6,8	1. 27. 25,03	31,00	+ 5,97	95. 41. 55,71	20,76	- 34,95
25. 11. 6. 59,8	1. 24. 1,12	6,69	+ 5,57	95. 49. 58,58	24,27	- 34,31
Nov. 2. 10. 29. 10,8	1. 17. 38,36	43,99	+ 5,63	95. 57. 55,27	22,30	- 32,97
6. 10. 10. 35,1	1. 14. 45,83	51,43	+ 5,60	95. 57. 37,27	4,81	- 32,46

COMPARISONS OF CLOCKS

AND

CHRONOMETERS.

1841.

\*. THE letter *H* is an abbreviation for Hardy, the Transit Clock: *G* for Graham, the Clock in the Dome, commonly used with the Five-feet Equatoreal: *M* for Molyneux, the Clock in the Circle room. *U* and *X* are Sidereal Chronometers, and *W* is a Solar Chronometer, each beating half-seconds.

Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.	Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.
		<i>h.</i> <i>m.</i> <i>s.</i>		<i>h.</i> <i>m.</i> <i>s.</i>			<i>h.</i> <i>m.</i> <i>s.</i>		<i>h.</i> <i>m.</i> <i>s.</i>
Apr. 19	H.	13. 51. 24	U.	13. 55. 20,0	Sept. 21	H.	18. 27. 21,2	X.	18. 27. 45,0
Apr. 23	H.	15. 0. 6	U.	15. 1. 23,5*		H.	19. 9. 16,3	X.	19. 9. 40,0
Apr. 29	H.	14. 46. 47	U.	14. 48. 35,0		H.	19. 10. 56,3	X.	19. 11. 20,0
Apr. 30	G.	15. 38. 55	W.	13. 4. 5,5	Sept. 22	H.	19. 6. 39	X.	19. 7. 1,5
	G.	15. 39. 50	W.	13. 5. 0,5		H.	19. 7. 18	X.	19. 7. 40,5
	H.	15. 45. 12	W.	13. 8. 17,0	Sept. 23	G.	21. 24. 44,1	X.	21. 24. 35,0
	H.	15. 46. 2	W.	13. 9. 7,0		G.	21. 25. 59,1	X.	21. 25. 50,0
May 1	H.	15. 26. 27	U.	15. 28. 25,0		H.	21. 27. 42,0	X.	21. 28. 5,0
May 14	H.	14. 18. 8	U.	14. 20. 56,0		H.	21. 28. 17,0	X.	21. 28. 40,0
	G.	14. 20. 13	U.	14. 22. 19,0	Sept. 24	H.	19. 17. 7,1	X.	19. 17. 30,5
May 23	G.	13. 4. 4,2	U.	13. 3. 45,5		H.	19. 18. 3,1	X.	19. 18. 26,5
	G.	13. 4. 49,2	U.	13. 4. 30,5	Sept. 30	H.	10. 45. 51	M.	10. 46. 39,5
	H.	13. 6. 44,0	U.	13. 7. 5,5	Oct. 3	H.	10. 13. 16	M.	10. 14. 10,0
	H.	13. 7. 49,1	U.	13. 8. 10,5	Oct. 5	H.	10. 26. 41	M.	10. 27. 39,2
	G.	13. 49. 4	U.	13. 48. 45,5	Oct. 23	H.	2. 52. 40	M.	2. 53. 15,0
	G.	13. 49. 24	U.	13. 49. 5,5	Nov. 12	H.	22. 2. 50	M.	22. 4. 12,0
	H.	13. 51. 54	U.	13. 52. 15,5	Nov. 24	H.	0. 7. 0	M.	0. 7. 52,0
	H.	13. 52. 22	U.	13. 52. 43,5	Nov. 25	G.	22. 48. 53	W.	6. 28. 45,5
Sept. 9	H.	1. 39. 49	W.	14. 22. 30,5		G.	22. 49. 12	W.	6. 29. 4,5
	H.	1. 40. 17	W.	14. 22. 58,5		H.	22. 49. 48	W.	6. 31. 14,5
	G.	1. 45. 59	W.	14. 24. 25,0		H.	22. 50. 12	W.	6. 31. 38,5
	G.	1. 46. 38	W.	14. 25. 4,0	Nov. 27	G.	9. 23. 26	W.	16. 53. 17,0
	G.	2. 45. 22	W.	15. 23. 38,2		G.	9. 23. 35	W.	16. 53. 26,0
	G.	2. 45. 49	W.	15. 24. 5,1		H.	9. 24. 18	W.	16. 56. 8,0
	H.	2. 43. 36	W.	15. 26. 7,0		H.	9. 24. 26	W.	16. 56. 16,0
	H.	2. 44. 7	W.	15. 26. 38,0		H.	10. 16. 59	W.	17. 48. 40,5
Sept. 11	H.	5. 59. 54	W.	18. 33. 56,0		H.	10. 17. 25	W.	17. 49. 6,5
	H.	6. 0. 5	W.	18. 34. 7,0		G.	10. 21. 19	W.	17. 51. 0,0
	G.	6. 1. 21	W.	18. 35. 56,0		G.	10. 21. 27	W.	17. 51. 8,0
	G.	6. 1. 27	W.	18. 36. 2,0	Dec. 18	H.	3. 3. 29	W.	9. 12. 54,0
	H.	6. 6. 16	X.	6. 6. 40,2		H.	3. 3. 33	W.	9. 13. 3,0
	H.	6. 7. 11	X.	6. 7. 35,2		G.	3. 9. 27	W.	9. 14. 12,5
	G.	7. 7. 57	W.	19. 42. 21,0		G.	3. 9. 34	W.	9. 14. 19,5
	G.	7. 8. 6	W.	19. 42. 30,0	Dec. 20	G.	23. 35. 57	W.	5. 34. 1,6
	H.	7. 10. 33	W.	19. 44. 23,5		G.	23. 36. 20	W.	5. 34. 24,5
	H.	7. 10. 41	W.	19. 44. 31,5		H.	23. 38. 15	W.	5. 41. 19,9
	H.	7. 16. 41	X.	7. 17. 5,3		H.	23. 38. 27	W.	5. 41. 31,8
	H.	7. 17. 16	X.	7. 17. 40,2		H.	23. 43. 51	X.	23. 43. 40,5
Sept. 15	H.	23. 4. 7,4	M.	23. 4. 30,0		H.	23. 45. 31	X.	23. 45. 20,5
Sept. 17	H.	13. 9. 26	M.	13. 9. 50,0		H.	0. 28. 26	X.	0. 28. 15,3
Sept. 18	H.	21. 30. 1	X.	21. 30. 24,0		H.	0. 29. 26	X.	0. 29. 15,3
	H.	21. 30. 22	X.	21. 30. 45,0					
	H.	23. 48. 31	M.	23. 48. 56,8					
Sept. 21	H.	18. 26. 16,2	X.	18. 26. 40,0					

\* Between April 19 and April 23 *U* was put back 3<sup>m</sup>.

ZENITH DISTANCES

OF

A STAR VERY NEAR THE POLE,

OBSERVED WITH

THE MURAL CIRCLE;

WITH

THE SIDEREAL TIMES OF OBSERVATION.

---

1841.

Month and Day.	Number of Series.	Time of Observation by Molyneux.	Pointer.	Microscopes.						Microm. Reading.	Correction to Fixed Wire.	Concluded reading of Circle.	Observer.
				A	B	C	D	E	F				
		h. m. s.	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	
Sept. 15	1	19. 12. 21	139. 55	0. 26,0	25,2	23,2	24,8	26,1	25,8	9,236	+ 18,18	139. 55. 25,15	C.
	2	22. 44. 46	139. 50	0. 41,9	38,4	39,0	39,2	39,3	41,1			139. 50. 39,72	C.
	3	23. 36. 55	139. 50	0. 41,9	38,4	39,0	39,2	39,3	41,1			139. 50. 57,90	C.
Sept. 16	4	20. 45. 38	139. 50	2. 16,9	12,3	15,1	13,0	13,2	14,9	14,257	- 1. 26,49	139. 52. 13,90	G.
	5	22. 14. 10	139. 50	2. 16,9	12,3	15,1	13,0	13,2	14,9			139. 50. 47,41	G.
	6	23. 48. 34	139. 50	1. 10,2	6,5	8,1	7,2	4,7	7,7			139. 51. 7,23	G.
Sept. 17	7	19. 24. 47	139. 50	4. 57,2	55,2	57,0	54,1	57,3	56,3			139. 54. 55,43	G.
	8	21. 24. 16	139. 50	1. 25,8	24,1	23,7	24,1	24,4	26,0			139. 51. 24,47	G.
	9	23. 24. 22	139. 50	0. 54,0	49,8	53,4	50,7	50,3	51,9			139. 50. 51,55	G.
Sept. 18	10	19. 34. 55	139. 50	4. 32,0	32,0	29,4	30,9	32,1	31,9			139. 54. 31,47	C.
	11	21. 33. 6	139. 50	1. 18,8	16,4	17,0	16,8	17,4	17,7			139. 51. 17,15	G.
	12	23. 42. 6	139. 50	0. 61,0	61,1	59,0	61,6	57,0	61,8			139. 51. 0,10	G.
Sept. 21	13	19. 11. 6	139. 55	0. 30,0	28,7	25,5	30,6	27,3	31,2	20,235	- 3. 31,19	139. 55. 28,80	G.
	14	21. 8. 40	139. 50	1. 42,1	40,1	38,0	41,6	39,1	43,1			139. 51. 40,40	G.
	15	22. 57. 47	139. 50	4. 10,3	8,4	7,7	8,9	8,3	11,3			139. 50. 37,33	C.
	16	0. 16. 23	139. 50	4. 10,3	8,4	7,7	8,9	8,3	11,3			139. 51. 31,98	C.
	17	1. 15. 20	139. 50	4. 10,3	8,4	7,7	8,9	8,3	11,3			139. 53. 3,66	C.
	18	2. 11. 8	139. 50	4. 10,3	8,4	7,7	8,9	8,3	11,3			139. 55. 7,73	C.
Sept. 23	19	20. 28. 44	139. 50	2. 43,1	41,8	40,0	42,4	41,0	45,0	13,606	- 1. 12,82	139. 52. 41,80	G.
	20	21. 17. 22	139. 50	2. 43,1	41,8	40,0	42,4	41,0	45,0			139. 51. 28,98	G.
Sept. 30	21	20. 47. 11	139. 50	2. 8,3	5,9	4,8	7,1	6,5	8,9	14,158	- 1. 24,25	139. 52. 6,83	G.
	22	22. 10. 46	139. 50	2. 8,3	5,9	4,8	7,1	6,5	8,9			139. 50. 42,58	G.
	23	23. 23. 4	139. 50	0. 46,6	43,8	43,0	45,9	43,2	47,1			139. 50. 44,90	G.
	24	2. 3. 2	139. 50	4. 47,2	43,8	45,3	44,9	45,9	48,2			139. 54. 45,70	G.
Oct. 2	25	21. 19. 0	139. 50	1. 28,7	27,2	26,1	27,8	28,6	29,9	2,375	+ 2. 41,23	139. 51. 27,98	G.
	26	23. 16. 16	139. 50	0. 43,5	40,8	40,2	41,1	41,5	42,0			139. 50. 41,48	G.
	27	1. 25. 17	139. 50	0. 43,5	40,8	40,2	41,1	41,5	42,0			139. 53. 22,71	G.
Oct. 5	28	21. 4. 17	139. 50	1. 45,0	42,4	42,4	43,4	43,8	45,1			139. 51. 43,53	G.
Oct. 23	29	20. 42. 31	139. 50	2. 11,6	13,1	12,0	11,1	13,4	15,2			139. 52. 12,57	G.
	30	23. 19. 45	139. 50	0. 31,4	32,0	30,0	30,1	32,1	34,1			139. 50. 31,58	G.
Oct. 25	31	23. 4. 26	139. 50	0. 27,1	27,9	26,0	26,2	28,3	30,1			139. 50. 27,57	G.
	32	1. 7. 18	139. 50	2. 37,7	36,7	36,1	34,7	37,8	39,8			139. 52. 36,93	G.
Nov. 12	33	21. 50. 44	139. 50	0. 45,7	43,6	45,2	43,2	45,3	46,2			139. 50. 44,85	G.
	34	23. 24. 10	139. 50	0. 31,7	29,0	31,1	28,4	30,8	33,3			139. 50. 30,70	G.
	35	0. 59. 16	139. 50	2. 17,1	15,1	16,7	11,8	14,7	17,7			139. 52. 15,45	G.
	36	2. 36. 37	139. 55	0. 54,9	53,8	54,2	51,8	53,8	55,0			139. 55. 53,90	G.
Nov. 20	37	22. 13. 10	139. 50	0. 25,3	26,9	26,8	24,9	29,7	28,2			139. 50. 26,97	G.
Nov. 24	38	21. 53. 1	139. 50	0. 45,6	42,0	44,9	40,8	44,5	45,1			139. 50. 43,82	G.
	39	23. 3. 48	139. 50	0. 22,1	18,1	21,5	16,8	19,9	22,4			139. 50. 20,13	G.
	40	0. 10. 30	139. 50	1. 6,1	2,3	6,0	1,3	4,2	5,7			139. 51. 4,28	G.
	41	1. 17. 58	139. 50	2. 51,3	47,6	51,3	45,8	50,3	51,0			139. 52. 49,58	G.
Nov. 25	42	21. 53. 22	139. 50	0. 46,1	43,1	46,3	42,0	44,0	47,0			139. 50. 44,75	G.
	43	0. 35. 36	139. 50	1. 38,7	35,0	39,0	33,8	37,3	39,4			139. 51. 57,22	G.
	44	3. 16. 21	139. 55	2. 44,8	41,2	46,0	40,3	43,2	45,3			139. 59. 43,50	G.

The star is of the 9th magnitude. Its approximate R.A. is  $10^h.46^m$ , and approximate N.P.D.  $12'$ . It is always in the field of the Circle Telescope.

No. 3. The Circle remained clamped after the last observation. Adopted reading of coincidence of the micrometer with fixed wire =  $10^h.108$ . No. 5. The Circle remaining clamped. Coincidence reading,  $10^h.110$ . No. 10. Preceding divisions bisected: correction applied for Run =  $+0''.5$ . No. 12. Just before this observation the Circle was struck with some violence. No. 13 and 14. Very difficult: hazy and faint. No. 15-18. The Circle remaining clamped. Adopted coincidences,  $10^h.108$ ,  $10^h.107$ ,  $10^h.102$ ,  $10^h.098$ . No. 17 was exceedingly faint and doubtful. No. 19 and 20. The Circle remaining clamped. Coincidence reading =  $10^h.114$ . Misty clouds prevented taking more. No. 21 and 22. The Circle remaining clamped. Coincidence reading =  $10^h.118$ . These were good. No. 23 and 26. Too faint to be satisfactory. No. 27. The Circle remaining clamped after the last observation. Coincidence reading =  $10^h.106$ . No. 30. Very faint and doubtful. No. 31 and 32. Too faint. Not a good night for these observations. No. 37. Not sufficiently visible. After this it became cloudy. No. 44. Very difficult on account of faintness.

Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Concluded Zenith Distance.	Time of Observation by Hardy.	Corresponding Sidereal Time.
		Attach.	Free.				
" " "	Inch.	"	"	"	" " "	h. m. s.	h. m. s.
37.53.33.78	29,860	65.2	63.4	44.07	37.54.17.85	19.11.58.5	19.12.28.4
37.58.19.21	29,848	62.1	60.5	44.44	37.59.3.65	22.44.23.4	22.44.53.4
37.58.1.03				44.43	37.58.45.46	23.36.32.4	23.37.2.4
37.56.45.03	29,844	62.2	55.2	44.87	37.57.29.90	20.45.14.6	20.45.45.0
37.58.11.52				44.91	37.58.56.43	22.13.46.6	22.14.17.0
37.57.51.70	29,862	57.3	52.8	45.14	37.58.36.84	23.48.10.5	23.48.40.9
37.54.3.50	29,926	61.0	59.5	44.53	37.54.48.03	19.24.22.7	19.24.54.2
37.57.34.46	29,918	58.6	55.3	44.99	37.58.19.45	21.23.51.7	21.24.23.2
37.58.7.38	29,900	57.6	54.5	45.05	37.58.52.43	23.23.57.5	23.24.29.1
37.54.27.46	29,900	60.2	58.5	44.59	37.55.12.05	19.34.29.3	19.35.1.5
37.57.41.78		58.1	55.5	44.95	37.58.26.73	21.32.40.3	21.33.12.6
37.57.58.45	29,020	57.3	54.7	45.06	37.58.43.51	23.41.40.2	23.42.12.6
37.53.29.75	29,822	59.3	59.0	44.40	37.54.14.15	19.10.35.6	19.11.10.2
37.57.18.15	29,818	58.7	57.0	44.68	37.58.2.83	21.8.9.6	21.8.44.2
37.58.21.22	29,762	57.5	55.5	44.76	37.59.5.98	22.57.16.4	22.57.51.1
37.57.26.57	29,728	56.6	55.7	44.67	37.58.11.24	0.15.52.4	0.16.27.2
37.55.54.95				44.62	37.56.39.57	1.14.49.4	1.15.24.2
37.53.50.82				44.57	37.54.35.39	2.10.37.4	2.11.12.3
37.56.16.75	29,570	58.0	56.0	44.37	37.57.1.12	20.28.10.4	20.28.47.1
37.57.29.57			54.3	44.56	37.58.14.13	21.16.48.4	21.17.25.1
37.56.51.72	29,334	57.7	55.0	44.12	37.57.35.84	20.46.23.7	20.47.8.6
37.58.15.97	29,348	54.8	52.8	44.38	37.59.0.35	22.9.58.7	22.10.43.7
37.58.13.65	29,366	54.0	51.4	44.53	37.58.58.18	23.22.16.6	23.23.1.6
37.54.12.85	29,396	53.0	50.7	44.53	37.54.57.38	2.2.14.2	2.2.59.3
37.57.31.12	29,748	54.5	52.2	45.02	37.58.16.14	21.18.8.7	21.18.55.8
37.58.17.62			49.7	45.27	37.59.2.89	23.15.24.7	23.16.11.9
37.55.36.39	29,756	50.0	47.2	45.44	37.56.21.83	1.24.25.6	1.25.12.9
37.57.15.57	28,928	53.7	51.7	43.82	37.57.59.39	21.3.20.0	21.4.10.6
37.56.45.72	29,108	48.8	47.7	44.44	37.57.30.16	20.41.56.4	20.42.7.2
37.58.26.71	29,036	47.7	46.5	44.48	37.59.11.19	23.19.10.1	23.19.21.0
37.58.30.72	29,160	47.4	45.5	44.77	37.59.15.49	23.3.46.2	23.4.0.6
37.56.21.36	29,172	45.5	43.1	44.95	37.57.6.31	1.6.38.1	1.6.52.6
37.58.13.40	29,398	44.6	42.0	45.45	37.58.58.85	21.49.22.0	21.49.56.7
37.58.27.55	29,386	42.4	41.1	45.52	37.59.13.07	23.22.47.9	23.23.22.7
37.56.42.80			40.2	45.56	37.57.28.56	0.57.53.9	0.58.28.8
37.53.4.35	29,380	42.4	40.0	45.47	37.53.49.82	2.35.14.8	2.35.49.8
37.58.31.28	29,092	40.4	42.2	44.97	37.59.16.25	22.12.28.0	22.13.9.2
37.58.14.43	29,818	41.0	39.1	46.38	37.59.0.81	21.52.9.0	21.52.54.4
37.58.38.12	29,812	39.5	38.2	46.47	37.59.24.59	23.2.56.0	23.3.41.5
37.57.53.97				46.45	37.58.40.42	0.9.38.0	0.10.23.5
37.56.8.67	29,806	38.7	37.8	46.43	37.56.55.10	1.17.6.0	1.17.51.5
37.58.13.50	29,800	38.8	37.2	46.53	37.59.0.03	21.52.27.6	21.53.13.8
37.57.21.03	29,824	38.2	36.5	46.61	37.58.7.64	0.34.41.5	0.35.27.8
37.51.14.75	29,838	37.8	35.6	46.75	37.52.1.50	3.15.26.4	3.16.12.8

One Micrometer Revolution = 20".654.

Correction for Run = - 4".6. From Sept. 30 = - 1".2. From Oct. 5 = - 2".7. From Oct. 23 = - 2".3. From Nov. 12 = - 0".8. From Nov. 20 = - 0".3.

Adopted Zenith point = 177°.48'.58".93. From N°. 12. on Sept. 18 = 177°.48'.58".55. From Oct. 2 = 177°.48'.59".10. From Oct. 23 = 177°.48'.58".29. From Nov. 12 = 177°.48'.58".25.





MICROMETER MEASURES OF DIFFERENCES  
OF  
RIGHT ASCENSION AND NORTH POLAR DISTANCE  
OF PALLAS AND ADJACENT STARS,  
TAKEN WITH THE NORTHUMBERLAND EQUATOREAL;  
AND CALCULATION OF  
GEOCENTRIC RIGHT ASCENSIONS AND NORTH POLAR  
DISTANCES OF THE PLANET.  
—  
1841.

## DIFFERENCES OF RIGHT ASCENSION.

Day and Month 1841.	Number of Series.	Object.	Micrometer.	Micrometer Reading.	Time by Chronometer X.	Sidereal Time.	Difference of Micrometer readings in arc.	Apparent Excess of R.A. of Pallas above R.A. of $\star$ .	Observer.
				r.	h. m. s.	h. m. s.	"	s.	
Sept. 18	1	Pallas A.S.C. 2697	A. B.	21,765 21,500	20 . 45 . 39	20 . 45 . 50,0	395,54	+ 26,38	C.
	2	Pallas A.S.C. 2697	A. B.	21,647 21,550	20 . 47 . 44	20 . 47 . 55,0	394,38	+ 26,30	C.
	3	Pallas A.S.C. 2697	A. B.	21,212 21,977	20 . 49 . 1	20 . 49 . 12,0	394,25	+ 26,29	C.

## DIFFERENCES OF NORTH POLAR DISTANCE.

Day and Month 1841.	Number of Series.	Object.	Micrometer.	Micrometer Reading.	Time by Chronometer X.	Sidereal Time.	Difference of Micrometer readings in arc.	Apparent Excess of N.P.D. of Pallas above N.P.D. of $\star$ .	Observer.
				r.	h. m. s.	h. m. s.	"	" "	
Sept. 18	4	Pallas A.S.C. 2697	A. B.	20,936 24,973	20 . 29 . 10	20 . 29 . 19,3	440,27	+ 7 . 15,54	C.
	5	Pallas A.S.C. 2697	A. B.	21,160 24,951	20 . 34 . 45	20 . 34 . 54,3	443,70	+ 7 . 18,94	C.
	6	Pallas A.S.C. 2697	A. B.	21,291 24,867	20 . 37 . 32	20 . 37 . 41,3	444,49	+ 7 . 19,72	C.
Sept. 21	7	Pallas $\eta$ Aquarii	B. B.	4,705 16,785	20 . 2 . 44 20 . 7 . 33	20 . 2 . 54,9 20 . 7 . 43,9	205,00	+ 3 . 25,99	C.
	8	Pallas $\eta$ Aquarii	B. B.	4,701 16,703	20 . 11 . 13 20 . 13 . 26	20 . 11 . 23,9 20 . 13 . 36,9	203,67	+ 3 . 23,87	C.
	9	Pallas $\eta$ Aquarii	B. B.	4,374 16,616	20 . 18 . 39 20 . 20 . 53	20 . 18 . 50,0 20 . 21 . 4,0	207,75	+ 3 . 27,95	C.
	10	Pallas $\eta$ Aquarii	B. B.	3,868 18,102	21 . 21 . 7 21 . 23 . 23	21 . 21 . 18,0 21 . 23 . 34,0	241,55	+ 4 . 1,74	C.
	11	Pallas $\eta$ Aquarii	B. B.	3,513 18,049	21 . 31 . 53 21 . 34 . 9	21 . 32 . 4,0 21 . 34 . 20,0	246,68	+ 4 . 6,87	C.
	12	Pallas $\eta$ Aquarii	B. B.	2,925 18,050	21 . 49 . 11 21 . 51 . 28	21 . 49 . 22,0 21 . 51 . 39,0	256,67	+ 4 . 16,87	C.

The illuminated side of the Telescope was West. The micrometer-head marked A was westward in the observations of R.A., and upward in the observations of N.P.D., the Telescope looking southward. One micrometer revolution of each micrometer =  $16''.970$ . The reading of A being  $10',000$ , the coincidence reading of B used for the R.A. observations =  $9',957$ : for the N.P.D. observations (Sept. 18) =  $9',965$ . For an account of these readings, and for the mean places of the stars, see Introduction.

Small corrections for refraction have been applied to the apparent excesses of R.A. and N.P.D. viz. +  $0'',01$  to N°. 1, 2, 3: +  $0'',52$ , +  $0'',49$  and +  $0'',48$  to N°. 4, 5, 6: +  $0'',99$  to N°. 7 and +  $0'',20$  to N°. 8—12.

N°. 1—3. Before these the micrometer-wire A was equatorially adjusted, and then moved through  $90^\circ$ . Reading of Position Circle  $88^\circ.45'$ . The Planet and star being in the field together, were bisected at the same time, the Clock moving the Instrument.

## CALCULATION OF GEOCENTRIC RIGHT ASCENSIONS.

Hour angle East from the Meridian.	Correction for Parallax.	Geocentric Excess of R.A. of Pallas above R.A. of $\star$ .	Assumed R.A. of $\star$ .	Concluded R.A. of Pallas.	Greenwich Mean Solar Time of Observation of Pallas.	Seconds of Tabular R.A.	Error of Tabular R.A.
h. m.	s.	s.	h. m. s.	h. m. s.	h. m. s.	s.	s.
1. 40,7	- 0,07	+ 26,31	22. 26. 32,09	22. 26. 58,40	8. 55. 2,8	64,09	+ 5,69
1. 38,6	- 0,06	+ 26,24	.....	22. 26. 58,83	8. 57. 7,5	64,03	+ 5,70
1. 37,3	- 0,06	+ 26,23	.....	22. 26. 58,82	8. 58. 24,3	64,00	+ 5,68

## CALCULATION OF GEOCENTRIC NORTH POLAR DISTANCES.

Hour angle East from the Meridian.	Correction for Parallax.	Geocentric Excess of N.P.D. of Pallas above N.P.D. of $\star$ .	Assumed N.P.D. of $\star$ .	Concluded N.P.D. of Pallas.	Greenwich Mean Solar Time of Observation of Pallas.	Minutes and Seconds of Tabular N.P.D.	Error of Tabular N.P.D.
h. m.	"	" "	" . "	" . "	h. m. s.	" "	"
1. 57,2	- 3,00	+ 7. 12,54	90. 12. 49,09	90. 20. 1,63	8. 38. 34,8	19. 26,63	- 35,00
1. 51,6	- 3,00	+ 7. 15,94	.....	90. 20. 5,03	8. 44. 8,9	19. 29,69	- 35,34
1. 48,8	- 3,00	+ 7. 16,72	.....	90. 20. 5,81	8. 46. 55,4	19. 31,21	- 34,60
2. 22,1	- 3,02	+ 3. 22,97	90. 55. 41,89	90. 59. 4,86	8. 0. 27,0	58. 23,83	(- 41,03)
2. 13,6	- 3,02	+ 3. 20,85	.....	90. 59. 2,74	8. 8. 54,6	58. 28,43	- 34,31
2. 6,2	- 3,02	+ 3. 24,93	.....	90. 59. 6,82	8. 16. 19,5	58. 32,45	- 34,37
1. 5,7	- 3,03	+ 3. 58,71	.....	90. 59. 40,60	9. 18. 37,3	59. 6,30	- 34,30
0. 52,9	- 3,03	+ 4. 3,84	.....	90. 59. 45,73	9. 29. 21,5	59. 12,13	- 33,60
0. 35,6	- 3,03	+ 4. 13,84	.....	90. 59. 55,73	9. 46. 36,7	59. 21,50	- 34,23

N°. 4—6. Star and Planet bisected at the same time. During these measures the reading of the Position Circle was  $178^{\circ}.0'$ . Micrometer-wire A was afterwards equatorially adjusted and the reading of the Position Circle was found to be  $178^{\circ}.45'$ . The correction to the measured differences of N.P.D. on this account is  $-3''.25$ , which has been applied to the apparent excesses of N.P.D.

N°. 7—12. The star and Planet were bisected by the same micrometer-wire in the same part of the field, and between the observations of each set, (excepting N°. 7) the Instrument was stationary. The result of N°. 7. appears to be affected by moving the Instrument.

N°. 8. The dome cut off part of the object-glass: in other respects good.

N°. 12. The bisection of the Planet not altogether satisfactory.



MICROMETER MEASURES  
OF  
DIFFERENCES OF NORTH POLAR DISTANCE  
OF MARS AND ADJACENT STARS.

TAKEN WITH THE NORTHUMBERLAND EQUATOREAL,  
AND THE FIVE-FEET EQUATOREAL;

AND  
CALCULATION OF GEOCENTRIC NORTH POLAR  
DISTANCES OF THE PLANET.

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1841.

Day and Month 1841.	Number of Series.	Object.	Micrometer.	Micrometer Reading.	Time by Chronometer U.	Sidereal Time.	Apparent Excess of N.P.D. of Limb of Mars above N.P.D. of $\star$ .	Observer.
				r.	h. m. s.	h. m. s.	"	
April 19	1	* (l) Mars S.L.	B. A.	10,000 8,464	12.48.24 12.52.45	12.45.35,5 12.49.56,5	- 0.26,60	G.
	2	* (l) Mars S.L.	B. A.	10,000 8,340	12.54.45 12.59.7	12.51.56,5 12.56.18,5	- 0.28,71	G.
	3	* (l) Mars S.L.	B. A.	10,000 8,302	13.0.15 13.4.37	12.57.26,5 13.1.48,5	- 0.29,35	G.
	4	* (l) Mars S.L.	B. A.	10,000 8,258	13.6.4 13.10.26	13.3.15,5 13.7.37,5	- 0.30,10	G.
	5	* (l) Mars S.L.	B. A.	10,000 8,084	13.11.17 13.15.38	13.8.28,5 13.12.49,5	- 0.33,06	G.
	6	* (l) Mars S.L.	B. A.	10,000 8,049	13.16.42 13.21.2	13.13.53,5 13.18.13,5	- 0.33,66	G.
	7	* (l) Mars S.L.	B. A.	10,000 7,990	13.21.43 13.26.3	13.18.54,5 13.23.14,5	- 0.34,66	G.
	8	* (l) Mars S.L.	B. A.	10,000 7,916	13.27.22 13.31.43	13.24.33,5 13.28.54,5	- 0.35,91	G.
	9	* (l) Mars S.L.	B. A.	10,000 7,825	13.32.23 13.36.44	13.29.34,5 13.33.55,5	- 0.37,46	G.
	10	* (l) Mars S.L.	B. A.	10,000 7,744	13.37.48 13.42.8	13.34.59,5 13.39.19,5	- 0.38,83	G.
April 23	11	* (n) Mars S.L.	B. A.	10,000 2,954	14.19.35 14.20.32	14.18.33,0 14.19.30,0	- 2.0,22	G.
	12	* (n) Mars N.L.	B. A.	10,000 1,948	14.22.16 14.23.12	14.21.14,0 14.22.10,0	- 2.17,31	G.
	13	* (n) Mars S.L.	B. A.	10,000 2,860	14.29.34 14.30.30	14.28.32,0 14.29.28,0	- 2.1,81	G.
	14	* (n) Mars N.L.	B. A.	10,000 1,827	14.32.20 14.33.15	14.31.18,0 14.32.13,0	- 2.19,36	G.
	15	* (n) Mars S.L.	B. A.	10,000 2,819	14.34.6 14.35.2	14.33.4,0 14.34.0,0	- 2.2,51	G.
	16	* (n) Mars N.L.	B. A.	10,000 1,750	14.35.42 14.36.38	14.34.40,0 14.35.36,0	- 2.20,68	G.
	17	* (n) Mars S.L.	B. A.	10,000 2,714	14.37.19 14.38.15	14.36.17,0 14.37.13,0	- 2.4,29	G.
	18	* (n) Mars N.L.	B. A.	10,000 1,704	14.40.42 14.41.38	14.39.40,0 14.40.36,0	- 2.21,46	G.
	19	* (n) Mars S.L.	B. A.	10,000 2,658	14.42.24 14.43.19	14.41.22,0 14.42.17,0	- 2.5,25	G.
	20	* (n) Mars N.L.	B. A.	10,000 1,610	14.44.42 14.45.37	14.43.40,0 14.44.35,0	- 2.23,06	G.

All the observations, excepting those of May 14, were made with the Northumberland Telescope. The micrometer wires were adjusted equatorially, and between the observations of each set the Instrument was stationary. The star and Planet were each bisected as nearly as possible at the fixed vertical wire in the middle of the field.

Towards the end of March the micrometer of the Northumberland Telescope received a blow which disarranged wire B. This wire could in consequence only be used as a fixed wire, and observations of both limbs at the same time were impracticable when the star preceded.

Hour angle from Meridian.	Correction for Parallax.	Correction for Semi- diameter.	Geocentric Excess of N.P.D. of Mars' centre above N.P.D. of $\star$ .	Assumed N.P.D. of $\star$ .	Concluded N.P.D. of Mars.	Greenwich Mean Solar Time of Observation of Mars.	Seconds of Tabular N.P.D.	Error of Tabular N.P.D.
h. m.	"	"	" "	" " "	" " "	h. m. s.	"	"
0. 53.3	- 12.61	- 7.52	- 0. 46.73	98. 54. 55.60	98. 54. 8.87	10. 58. 5.7	20.85	+ 11.98
0. 46.9	- 12.62	- 7.52	- 0. 48.85	.....	98. 54. 6.75	11. 4. 26.7	19.25	+ 12.50
0. 41.4	- 12.62	- 7.52	- 0. 49.49	.....	98. 54. 6.11	11. 9. 55.8	17.87	+ 11.76
0. 35.6	- 12.63	- 7.52	- 0. 50.25	.....	98. 54. 5.35	11. 15. 43.8	16.42	+ 11.07
0. 30.4	- 12.64	- 7.52	- 0. 53.22	.....	98. 54. 2.38	11. 20. 55.0	15.11	+ 12.73
0. 25.0	- 12.64	- 7.52	- 0. 53.82	.....	98. 54. 1.78	11. 26. 18.1	13.77	+ 11.99
0. 20.0	- 12.64	- 7.52	- 0. 54.82	.....	98. 54. 0.78	11. 31. 18.2	12.51	+ 11.73
0. 14.3	- 12.64	- 7.52	- 0. 56.07	.....	98. 53. 59.53	11. 36. 57.3	71.09	+ 11.56
0. 9.3	- 12.64	- 7.52	- 0. 57.62	.....	98. 53. 57.98	11. 41. 57.5	69.83	+ 11.85
0. 3.9	- 12.64	- 7.52	- 0. 58.99	.....	98. 53. 56.61	11. 47. 20.6	68.48	+ 11.87
0. 42.3	- 12.66	- 7.55	- 2. 20.43	98. 32. 21.30	98. 30. 0.87	12. 11. 40.9	11.79	+ 10.92
0. 44.9	- 12.66	+ 7.55	- 2. 22.42	.....	98. 29. 58.88	12. 14. 20.4	71.14	+ 12.26
0. 52.2	- 12.65	- 7.55	- 2. 22.01	.....	98. 29. 59.29	12. 21. 37.2	69.37	+ 10.08
0. 55.0	- 12.65	+ 7.55	- 2. 24.46	.....	98. 29. 56.84	12. 24. 21.8	68.70	+ 11.86
0. 56.8	- 12.64	- 7.55	- 2. 22.70	.....	98. 29. 58.60	12. 26. 8.5	68.27	+ 9.67
0. 58.4	- 12.64	+ 7.55	- 2. 25.77	.....	98. 29. 55.53	12. 27. 44.2	67.88	+ 12.35
1. 0.0	- 12.64	- 7.55	- 2. 24.48	.....	98. 29. 56.82	12. 29. 21.0	67.48	+ 10.66
1. 3.4	- 12.63	+ 7.55	- 2. 26.54	.....	98. 29. 54.76	12. 32. 43.4	66.67	+ 11.91
1. 5.1	- 12.63	- 7.55	- 2. 25.43	.....	98. 29. 55.87	12. 34. 24.2	66.26	+ 10.39
1. 7.4	- 12.63	+ 7.55	- 2. 28.14	.....	98. 29. 53.16	12. 36. 41.5	65.70	+ 12.54

The micrometer-head marked A was upwards. The reading of B being 107,000, the coincidence reading of A was 107,030, for which see Introduction. One micrometer revolution =  $16''.970$ .

Small corrections for refraction have been added to the apparent excesses of N.P.D.

N<sup>o</sup>. 1—10. The Planet was not well defined.

N<sup>o</sup>. 11—20. The observations on the whole were good, but the star was frequently very faint.



Day and Month 1841.	Number of Series.	Object.	Micrometer.	Micrometer Reading.	Time by Chronometer U.	Sidereal Time.	Apparent Excess of N.P.D. of Limb of Mars above N.P.D. of $\star$ .	Observer.
				r.	h. m. s.	h. m. s.	" "	
April 29	21	Mars S.L. 82 Virginis	A. A.	99,768 88,444	13.55.33 14. 0. 5	13.54.10,3 13.58.42,3	+3.12,38	G.
	22	Mars N.L. 82 Virginis	A. A.	15,510 5,958	14. 2.59 14. 7.31	14. 1.36,3 14. 6. 8,3	+2.42,29	G.
	23	Mars S.L. 82 Virginis	A. A.	15,379 4,810	14. 9.14 14.13.47	14. 7.51,3 14.12.24,3	+2.59,57	G.
	24	Mars S.L. 82 Virginis	A. A.	15,179 4,718	14.14.57 14.19.30	14.13.34,3 14.18. 7,3	+2.57,73	G.
	25	Mars N.L. 82 Virginis	A. A.	13,950 4,561	14.20.42 14.25.15	14.19.19,3 14.23.52,3	+2.39,52	G.
	26	Mars N.L. 82 Virginis	A. A.	13,788 4,460	14.26.52 14.31.25	14.25.29,3 14.30. 2,3	+2.38,49	G.
	27	Mars S.L. 82 Virginis	A. A.	14,950 4,611	14.32.45 14.37.18	14.31.22,3 14.35.55,3	+2.55,66	G.
May 1	28	* (q) Mars S.L.	B. A.	10,000 6,218	14.19.27 14.19.34	14.17.57,1 14.18. 4,1	-1. 4,77	G.
	29	* (q) Mars N.L.	B. A.	10,000 5,228	14.20.38 14.20.45	14.19. 8,1 14.19.15,1	-1.21,59	G.
	30	* (q) Mars S.L.	B. A.	10,000 6,172	14.22.17 14.22.24	14.20.47,1 14.20.54,1	-1. 5,55	G.
	31	* (q) Mars N.L.	B. A.	10,000 5,171	14.23.53 14.24. 0	14.22.23,1 14.22.30,1	-1.22,56	G.
	32	* (q) Mars S.L.	B. A.	10,000 6,147	14.25.12 14.25.19	14.23.42,1 14.23.49,1	-1. 5,97	G.
	33	* (q) Mars N.L.	B. A.	10,000 5,118	14.26.47 14.26.54	14.25.17,1 14.25.24,1	-1.23,46	G.
	34	* (q) Mars S.L.	B. A.	10,000 6,120	14.28. 7 14.28.14	14.26.37,1 14.26.44,1	-1. 6,43	G.
	35	* (q) Mars N.L.	B. A.	10,000 5,134	14.29.19 14.29.26	14.27.49,1 14.27.56,1	-1.23,18	G.
	36	* (q) Mars S.L.	B. A.	10,000 6,065	14.30.41 14.30.48	14.29.11,1 14.29.18,1	-1. 7,37	G.
	37	* (q) Mars N.L.	B. A.	10,000 5,080	14.31.57 14.32. 4	14.30.27,1 14.30.34,1	-1.24,10	G.
	38	* (q) Mars S.L.	B. A.	10,000 6,063	14.33.15 14.33.22	14.31.45,1 14.31.52,1	-1. 7,40	G.
	39	* (q) Mars N.L.	B. A.	10,000 5,010	14.34.24 14.34.30	14.32.54,1 14.33. 0,1	-1.25,29	G.
May 12	40	* (r) Mars S.L.	A. A.	110,614 88,120	16.56.58 17. 3.47	16.55. 2,3 17. 1.51,3	-6.23,03	G.

N<sup>os</sup>. 21—27. The observations were not satisfactory, the Planet being very unsteady.

N<sup>o</sup>. 21. In taking this set an attempt was made to observe both limbs, which failed in consequence of the unsteady action of the toothed-wheel and rack by which motion is given to the Telescope in declination. (See Camb. Obs. Vol. XI. p. xii.) It seems probable from the result that the toothed-wheel moved in the rack between the observations. This accident is most likely to occur in positions of the Telescope which require the use of the large declination rod.

Hour angle from Meridian.	Correction for Parallax.	Correction for Semi- diameter.	Geocentric Excess of N.P.D. of Mars' centre above N.P.D. of $\star$ .	Assumed N.P.D. of $\star$ .	Concluded N.P.D. of Mars.	Greenwich Mean Solar Time of Observation of Mars.	Seconds of Tabular N.P.D.	Error of Tabular N.P.D.
A. M.	"	"	"	"	"	A. M.	"	"
0. 25,4	- 12,52	- 7,52	+ 2. 52,34	97. 54. 12,20	97. 57. 4,54	11. 22. 49,9	7,70	(+ 3,16)
0. 32,8	- 12,52	+ 7,52	+ 2. 37,29	.....	97. 56. 49,49	11. 30. 14,6	66,11	+ 16,62
0. 39,1	- 12,51	- 7,52	+ 2. 39,54	.....	97. 56. 51,74	11. 36. 28,6	64,77	+ 13,03
0. 44,8	- 12,51	- 7,52	+ 2. 37,70	.....	97. 56. 49,90	11. 42. 10,7	63,55	+ 13,65
0. 50,5	- 12,50	+ 7,52	+ 2. 34,54	.....	97. 56. 46,74	11. 47. 52,7	62,33	+ 15,59
0. 56,7	- 12,49	+ 7,52	+ 2. 33,52	.....	97. 56. 45,72	11. 54. 3,7	61,00	+ 15,28
1. 2,6	- 12,48	- 7,52	+ 2. 35,66	.....	97. 56. 47,86	11. 59. 55,8	59,74	+ 11,88
0. 51,9	- 12,48	- 7,49	- 1. 24,74	97. 48. 20,40	97. 46. 55,66	11. 38. 47,9	65,40	+ 9,74
0. 53,1	- 12,48	+ 7,49	- 1. 26,58	.....	97. 46. 53,82	11. 39. 58,7	65,15	+ 11,33
0. 54,8	- 12,47	- 7,49	- 1. 25,51	.....	97. 46. 54,89	11. 41. 37,5	64,83	+ 9,94
0. 56,4	- 12,47	+ 7,49	- 1. 27,54	.....	97. 46. 52,86	11. 43. 13,2	64,50	+ 11,64
0. 57,7	- 12,47	- 7,49	- 1. 25,93	.....	97. 46. 54,47	11. 44. 32,0	64,24	+ 9,77
0. 59,3	- 12,47	+ 7,49	- 1. 28,44	.....	97. 46. 51,96	11. 46. 6,7	63,92	+ 11,96
1. 0,6	- 12,47	- 7,49	- 1. 26,39	.....	97. 46. 54,01	11. 47. 26,5	63,66	+ 9,65
1. 1,8	- 12,46	+ 7,49	- 1. 28,15	.....	97. 46. 52,25	11. 48. 38,3	63,42	+ 11,17
1. 3,2	- 12,46	- 7,49	- 1. 27,32	.....	97. 46. 53,08	11. 50. 0,1	63,15	+ 10,07
1. 4,4	- 12,46	+ 7,49	- 1. 29,07	.....	97. 46. 51,33	11. 51. 15,9	62,89	+ 11,56
1. 5,7	- 12,46	- 7,49	- 1. 27,35	.....	97. 46. 53,05	11. 52. 33,7	62,63	+ 9,58
1. 6,9	- 12,45	+ 7,49	- 1. 30,25	.....	97. 46. 50,15	11. 53. 41,5	62,40	+ 12,25
3. 47,8	- 11,51	- 7,18	- 6. 41,74	97. 13. 10,80	97. 6. 29,06	13. 38. 53,3	48,08	+ 19,02

N<sup>o</sup>. 28—30. These were very satisfactory. The  $\star$  (q) is a double star, the north preceding was bisected.

N<sup>o</sup>. 40. No comparison of the Chronometer U with Hardy was made on this day. The observations were not proceeded with in consequence of the toothed-wheel and rack failing to keep the Telescope in position. (See note to N<sup>o</sup>. 21.)

Day and Month 1841.	Number of Series.	Object.	Micrometer.	Micrometer Reading.	Time by Chronometer U.	Sidereal Time.	Apparent Excess of N.P.D. of Limb of Mars above N.P.D. of $\star$ .	Observer.
				<i>r.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>'' ''</i>	
May 14	41	Mars S.L.						
		... N.L.	L.	10,355	13 . 20 . 22	13 . 20 . 25,4	+ 0 . 18,52	G.
		* ( <i>t</i> )	L.	10,451	13 . 30 . 23	13 . 30 . 26,4	+ 0 . 3,21	
	42	Mars S.L.						
		... N.L.	L.	10,357	13 . 31 . 20	13 . 31 . 23,4	+ 0 . 18,09	G.
		* ( <i>t</i> )	L.	10,438	13 . 41 . 20	13 . 41 . 23,4	+ 0 . 2,71	
	43	Mars S.L.						
		... N.L.	L.	10,347	13 . 42 . 12	13 . 42 . 15,4	+ 0 . 17,39	G.
		* ( <i>t</i> )	L.	10,417	13 . 52 . 14	13 . 52 . 17,4	+ 0 . 2,34	
	44	Mars S.L.						
		... N.L.	L.	10,366	13 . 54 . 46	13 . 54 . 49,4	+ 0 . 17,09	G.
		* ( <i>t</i> )	L.	10,408	14 . 4 . 48	14 . 4 . 51,4	+ 0 . 1,40	

N<sup>os</sup>. 41—44. Observed with the Five-feet Equatoreal and Clock Graham. The observations were considered good. S.L. was observed on the fixed wire. The micrometer *L* is that which is below when the graduated face of the Declination circle is West, the Telescope looking southward. The adopted coincidence reading of *L* with the fixed wire is 9,897, for which see Introduction. One micrometer revolution = 33'',400.

Hour angle from Meridian.	Correction for Parallax.	Correction for Semi- diameter.	Geocentric Excess of N.P.D. of Mars' centre above N.P.D. of $\star$ .	Assumed N.P.D. of $\star$ .	Concluded N.P.D. of Mars.	Greenwich Mean Solar Time of Observation of Mars.	Seconds of Tabular N.P.D.	Error of Tabular N.P.D.
A m.	"	"	" "	o ' "	o ' "	A m. s.	"	"
0. 7,8	- 11,81		- 0. 0,95	97. 2. 43,60	97. 2. 42,65	9. 50. 11,8	60,46	+ 17,81
0. 18,8	- 11,81		- 0. 1,41	.....	97. 2. 42,19	10. 1. 8,0	59,64	+ 17,45
0. 29,5	- 11,81		- 0. 1,95	.....	97. 2. 41,65	10. 11. 58,3	58,82	+ 17,17
0. 42,2	- 11,80		- 0. 2,56	.....	97. 2. 41,04	10. 24. 30,2	57,87	+ 16,83



MISCELLANEOUS OBSERVATIONS

MADE WITH

THE NORTHUMBERLAND EQUATOREAL

IN THE YEAR 1841.

## I. OBSERVATIONS OF THE APPARENT DIAMETER OF VENUS.

THESE observations were all made with the double-image divided-glass eye-pieces. In each of these eye-pieces a fine wire, stretched across the middle of the field, is adjustable to the focus where the images are formed, and is also capable of revolving about the centre of the field. This wire was first made to coincide with the direction of the separation of the images, and then by the position circle it was made to coincide with the line joining the cusps of Venus. The moveable image was brought into contact with the fixed image alternately on one side and the other, and thus the difference of consecutive readings is a measure of twice the diameter. The Instrument was moved by the Clock during the observations.

March 6, at sidereal time  $6^h.11^m$ , with eye-piece N<sup>o</sup>. 10, power, 420. Observer, C.

No. of Contact.	Micrometer Reading.	Difference of Consecutive Readings.	Diameter in arc.
1	7,088		
2	2,915	4,173	26,924

Clouds prevented taking more measures. One micrometer revolution =  $12''.904$ .

March 9, between the sidereal times  $2^h.47^m$  and  $3^h.18^m$ , with eye-piece N<sup>o</sup> 10, power 420. Observer, C.

No. of Contact.	Micrometer Reading.	Difference of Consecutive Readings.	Diameter in arc.
1	7,067		
2	2,963	4,104	26,479
3	2,966		
4	7,062	4,096	26,427
5	2,969	4,093	26,408
6	7,058	4,089	26,382
7	2,943	4,115	26,550
8	7,038	4,095	26,420
9	2,930	4,108	26,505
10	7,034	4,104	26,479
11	2,928	4,106	26,492
12	7,018	4,090	26,388
13	2,965		
14	7,043	4,078	26,311
15	2,943	4,100	26,453
16	7,043	4,100	26,453

N<sup>os</sup>. 2 and 3 were contacts at the same Limb. Between N<sup>os</sup>. 12 and 13 it was discovered that the dome intercepted part of the object-glass. This circumstance appears to have had the effect of diminishing the micrometer readings without altering the measures of Venus's diameter. On this account N<sup>o</sup>. 13, which was taken after moving the dome, is not compared with N<sup>o</sup>. 12.

One micrometer revolution =  $12''.904$ .

In making the above observations I remarked that the direction of separation of the images was altered by putting the eye-glass out of focus.

March 9, between the sidereal times  $5^h.51^m$  and  $6^h.15^m$ , with eye-piece N<sup>o</sup>. 9, power 380. Observer, C.

No. of Contact.	Micrometer Reading.	Difference of Consecutive Readings.	Diameter in arc.
1	3,494		
2	6,614	3,120	26,298
3	3,546	3,068	25,861
4	6,643	3,097	26,105
5	3,541	3,102	26,147
6	6,630	3,089	26,038
7	3,520	3,110	26,214
8	6,658	3,138	26,450
9	3,534	3,124	26,332
10	6,620	3,086	26,012
11	3,534	3,086	26,012

One micrometer revolution =  $16''.858$ .



March 9, between the sidereal times  $6^h.19^m$  and  $6^h.38^m$ , with eye-piece N<sup>o</sup>. 10, power, 420. Observer, C.

No. of Contact.	Micrometer Reading.	Difference of Consecutive Readings.	Diameter in arc.
1	3,014		
2	7,022	4,008	25,859
3	3,012	4,010	25,872
4	7,040	4,034	26,027
5	3,013	4,033	26,021
6	7,035	4,022	25,950
7	3,030	4,005	25,840
8	7,043	4,013	25,892

One micrometer revolution =  $12''.904$ .

March 9, between the sidereal times  $6^h.48^m$  and  $7^h.2^m$ , with eye-piece N<sup>o</sup>. 8, power, 280. Observer, C.

No. of Contact.	Micrometer Reading.	Difference of Consecutive readings.	Diameter in arc.
1	6,351		
2	3,504	2,847	25,476
3	6,328	2,824	25,270
4	3,532	2,796	25,020
5	6,395	2,863	25,619
6	3,517	2,878	25,753
7	6,395	2,878	25,753
8	3,512	2,883	25,798
9	6,400	2,888	25,843
10	3,485	2,915	26,084

One micrometer revolution =  $17''.897$ .

The performance of this eye-piece is not nearly so satisfactory as that of either of the others. There was much confused light about the images, and apparently the images did not separate in a straight line.

#### COMPARISON WITH THE DIAMETERS IN THE NAUTICAL ALMANAC.

Mean Time of Observation.	Number of Measures.	Mean of Diameters by Observation.	Diameter in Nautical Almanac.	Excess of Latter.
March 6. 7 . 13	1	26,924	23,907	- 3,012
9. 3 . 54	13	26,442	24,685	- 1,756
- 6 . 53	10	26,147	24,721	- 1,426
- 7 . 19	7	25,923	24,725	- 1,200
- 7 . 45	9	25,624	24,731	- 0,891

The Mean Time of observation corresponds in each instance to the mean of the limiting sidereal times given above. I ascertained by calculation that the correction for refraction in no case amounts to more than one hundredth of a second. I am unable to account for the continually diminishing values of the observed diameters on March 9. This circumstance is the more remarkable as it appears to be entirely independent of the eye-piece employed.

#### II. MICROMETER MEASURES OF THE DISTANCE OF VENUS FROM THE MOON'S LIMB.

Sept. 11.  $18\frac{1}{2}^h$ , just before the occultation of Venus by the Moon, I took the following measures of distances of Venus's illuminated Limb from the Moon's Limb. The clock was moving the Instrument. The position circle was so adjusted that the two micrometer wires could touch the two limbs simultaneously. The reading of the upper vernier of the Position Circle was  $275^\circ.46'$ .

No. of Series.	Object.	Micrometer.	Micrometer reading.	Diff. of readings in Microm. rev.	Diff. of readings in arc.	Time by Chronometer X.
1	Moon's L. ....	A. ....	17,121	15,346	260,42	h. m. s. 5. 46. 59
	Venus's L. ....	B. ....	18,189			
2	Venus's L. ....	B. ....	17,917	11,439	194,12	5. 49. 32
	Moon's L. ....	A. ....	13,486			
3	Moon's L. ....	A. ....	13,460	7,653	129,87	5. 52. 0
	Venus's L. ....	B. ....	14,157			
4	Moon's L. ....	B. ....	11,620	5,372	91,16	5. 53. 31
	Venus's L. ....	A. ....	13,716			

The reading of micrometer A being 10<sup>r</sup>,000, the coincidence reading of B was found on Sept. 15 to be 9<sup>r</sup>,964. One micrometer revolution = 16<sup>r</sup>,970. The following is the mean result of the above measures.

Mean of the times by X.	Corresponding time by Hardy.	Sidereal Time.	Greenwich Mean Solar Time.	Mean of the measured distances.
h. m. s. 5 . 50 . 30,5	h. m. s. 5 . 50 . 6,3	h. m. s. 5 . 50 . 34,10	h. m. s. 18 . 25 . 49,02	h. m. s. 168,89

This result requires to be corrected for difference of refraction, and for error of position of the micrometer wires. The correction for refraction is + 0<sup>r</sup>,05. The other correction is obtained as follows. By the calculation of the apparent places of the Moon and Venus in the next page, it appears that the angle of position of their centres, reckoned in the usual manner, was 92°.31'. The reading of the Position Circle for the direction of a parallel of declination was 178°.45', and consequently the reading for the observations should have been 271°.16' instead of 273°.46'. If  $r$ ,  $r'$  be the semidiameters of the Moon and Venus, and  $d$  the measured distance between the limbs, the correction is  $\frac{r + d - r'}{2} \sin^2 2^\circ.30'$ . This amounts to 1<sup>r</sup>,10. Hence the corrected distance is 170<sup>r</sup>,04.

### III. MICROMETER MEASURES OF THE DISTANCE OF $\gamma$ SAGITTARII FROM THE MOON'S LIMB.

Sept. 22. 6<sup>h</sup> $\frac{3}{4}$ . By the calculations of the Nautical Almanac an occultation of the star  $\gamma$  Sagittarii occurred on this day at Greenwich, but in the latitude of the Cambridge Observatory it proved to be a near approach. Expecting this might happen I took the following measures of the distance of the star from the Moon's Limb. The reading of the position circle was 178°.40', the micrometer wires being equatorially adjusted. The Moon's Limb was rough and apparently not fully illumined.

No. of Series.	Object.	Micrometer.	Micrometer reading.	Difference of readings.	Diff. of readings in arc.	Time by Chronometer X.
1	Moon's L. ....	A. ....	5,913	1,355	22,99	h. m. s. 18. 44. 43
	Star	B. ....	15,406			
2	Moon's L. ....	A. ....	5,319	0,855	14,51	18. 46. 57
	Star	B. ....	15,500			
3	Moon's L. ....	A. ....	4,576	0,301	5,11	18. 50. 11
	Star	B. ....	15,689			

The micrometer-head marked A was upwards. Coincidence reading of B = 9<sup>r</sup>,964, A being at 10<sup>r</sup>,000. One micrometer revolution = 16<sup>r</sup>,970. N<sup>o</sup>. 3 was considered unsatisfactory. The following is the mean result of the above measures.

Mean of the times by X.	Corresponding time by Hardy.	Sidereal Time.	Greenwich Mean Solar Time.	Mean of the measured distances.
h. m. s. 18 . 47 . 17	h. m. s. 18 . 46 . 54,5	h. m. s. 18 . 47 . 30,22	h. m. s. 6 . 41 . 18,78	h. m. s. 14,20

No correction is required for refraction: nor for position of the micrometer wires, the apparent R.A. of the Moon and star being very nearly the same. (See p. [145]). Also the correction for defect of illumination is of insensible amount, the line joining the cusps being very nearly perpendicular to a parallel of declination. I find by calculation that at the nearest approach the star was distant from the Limb about 5<sup>r</sup>.

The Final equation given by the above mean result, and that given by the mean result of the measures of distance of Venus's Limb from the Moon's Limb are calculated on the next page.

Sept. 11, 18<sup>h</sup>. 25<sup>m</sup>. 49<sup>s</sup>.02 +  $t$  +  $\tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	87°. 38'. 31,50 + 15 × $t$
Moon's Geocentric Right Ascension in arc .....	130°. 41'. 36,00 + 0,6069 × ( $t$ + $\tau$ ) + $x''$
Moon's Geocentric N.P.D. ....	71°. 46'. 2,70 + 0,2123 × ( $t$ + $\tau$ ) + $y$
Moon's Horizontal Equatoreal Parallax .....	1°. 0'. 17,49 × (1 + 0,001 $m$ )
Moon's Geocentric Semidiameter .....	16'. 25,75 × (1 + 0,001 $n$ )
Venus's Geocentric Right Ascension in arc .....	131°. 28'. 41,25 + 0,0495 × ( $t$ + $\tau$ ) + $e''$
Venus's Geocentric N.P.D. ....	72°. 23'. 51,78 + 0,0102 × ( $t$ + $\tau$ ) + $f$
Venus's Horizontal Equatoreal Parallax .....	7,90 × (1 + 0,001 $m'$ )
Venus's Semidiameter .....	7,60 × (1 + 0,001 $n'$ )
Moon's apparent Right Ascension in arc .....	131°. 8'. 25,62 + 0,4869 $t$ + 0,6113 $\tau$ + 1,0083 $x$ - 0,0026 $y$ + 1,6230 $m$
Moon's apparent N.P.D. ....	72°. 23'. 5,55 + 0,1821 $t$ + 0,2162 $\tau$ + 0,0023 $x$ + 1,0118 $y$ + 2,2510 $m$
Moon's apparent Semidiameter .....	16'. 37,42 + 0,0005 $t$ + 0,9974 $n$
Venus's apparent Right Ascension in arc .....	131°. 28'. 44,70 + 0,0495 $t$ + 0,0495 $\tau$ + 0,0035 $m'$ + $e''$
Venus's apparent N.P.D. ....	72°. 23'. 56,65 + 0,0102 $t$ + 0,0102 $\tau$ + 0,0049 $m'$ + $f$

Difference of Apparent Semidiameters + 170'',04 = Apparent distance of centres =

$$19'. 23'',09 + 0'',9521 \times \{e - 0,4374t - 0,5618\tau - 1,0083x + 0,0026y - 1,6230m + 0,0035m'\} \\ - 0'',0430 \times \{ + 0,1821t + 0,2162\tau + 0,0023x + 1,0118y + 2,2510m \} \\ + 0'',0448 \times \{f + 0,0102t + 0,0102\tau + 0,0049m'\}.$$

Final Equation :

$$-3'',23 = 0,9521e - 0,9601x + 0,0448f - 0,0410y - 0,4243t - 0,5437\tau - 1,6421m - 0,9974n + 0,0036m' + 0,0076n'.$$

Sept. 22, 6<sup>h</sup>. 41<sup>m</sup>. 18<sup>s</sup>.78 +  $t$  +  $\tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	281°. 52'. 33,30 + 15 × $t$
Moon's Geocentric Right Ascension in arc .....	272°. 9'. 3,30 + 0,5564 × ( $t$ + $\tau$ ) + $x''$
Moon's Geocentric N.P.D. ....	116°. 27'. 32,76 - 0,0438 × ( $t$ + $\tau$ ) + $y$
Moon's Horizontal Equatoreal Parallax .....	54'. 35,72 × (1 + 0,001 $m$ )
Moon's Geocentric Semidiameter .....	14'. 52,63 × (1 + 0,001 $n$ )
Star's Right Ascension in arc .....	272°. 2'. 25,50 + $e''$
Star's N.P.D. ....	117°. 5'. 40,50 + $f$
Moon's apparent Right Ascension in arc .....	272°. 2'. 39,70 + 0,3996 $t$ + 0,5624 $\tau$ + 1,0109 $x$ - 0,0009 $y$ - 0,3878 $m$
Moon's apparent N.P.D. ....	117°. 20'. 52,17 - 0,0551 $t$ - 0,0435 $\tau$ + 0,0008 $x$ + 1,0028 $y$ + 3,2085 $m$
Moon's apparent Semidiameter .....	14'. 55,24 - 0,0001 $t$ + 0,8952 $n$

Apparent Semidiameter + 14'',20 = Apparent distance of Star from Moon's centre =

$$15'. 11'',76 + 0'',0123 \times \{-e + 0,3996t + 0,5624\tau + 1,0109x - 0,0009y - 0,3878m\} \\ + 0'',9998 \times \{-0,0551t - 0,0435\tau + 0,0008x + 1,0028y + 3,2085m\} - 0'',9998f.$$

Final Equation :

$$-2'',32 = -0,0123e + 0,0132x - 0,9998f + 1,0026y - 0,0503t - 0,0366\tau + 3,2071m - 0,8952n.$$



OCCULTATIONS  
OF  
FIXED STARS AND THE PLANET VENUS  
BY THE MOON,

WITH  
THE EQUATIONS OBTAINED BY CALCULATION  
OF THE OCCULTATIONS.

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1841.

Day of Observation 1841.	Ref. No.	Phenomenon.	Moon's Limb.	Clock or Chronom.	Instrument.	Time noted.	Corresponding Sidereal Time.	Greenwich Mean Solar Time.	Observer.
Apr. 30	1	Disappearance of $p^8$ Leonis	Dark	G.	5-feet Equatoreal	h. m. s. 15.34.55,8	h. m. s. 15.37.27,43	h. m. s. 13. 1.54,18	C.
May 23	2	Disappearance of $\omega^1$ Geminorum	Dark	G.	5-feet Equatoreal	13. 0. 7,0	13. 0.23,80	8.54.50,33	C.
...	3	Reappearance of $\omega^1$ Geminorum	Bright	G.	5-feet Equatoreal	13.45.54,6	13.46.11,59	9.40.30,61	G.
Sept. 9	4	Disappearance of $\epsilon$ Geminorum	Bright	G.	5-feet Equatoreal	1.42.10,8	1.38.21,46	14.22. 9,50	C.
...	5	Reappearance of $\epsilon$ Geminorum	Dark	W.	46-inch Dollond	14.20.38,1	1.38.22,16	14.22.10,20	G.
...	6	Disappearance of Venus, first contact of gibbous Limb...	Bright	G.	5-feet Equatoreal	2.40.57,7	2.37. 8,44	15.20.46,86	C.
...	7	Disappearance of Venus, com- plete immersion.....	Bright	W.	46-inch Dollond	15.19.15,7	2.37. 9,54	15.20.47,96	G.
...	8	Reappearance of Venus, first appearance of gibbous Limb	Dark	X.	Northumb. Equat.	5.56.46,8	5.56.50,40	18.32. 4,29	C.
...	9	Reappearance of Venus, com- plete emersion.....	Dark	G.	5-feet Equatoreal	5.55.47,4	5.56.48,49	18.32. 2,39	G.
21	10	Disappearance of $\gamma$ Ophiuchi	Dark	X.	Northumb. Equat.	7. 5.58,0	7. 6. 1,58	19.41. 4,14	C.
...	11	Reappearance of $\gamma$ Ophiuchi	Bright	G.	5-feet Equatoreal	7. 4.59,0	7. 6. 0,02	19.41. 2,58	G.
23	12	Disappearance of $\psi$ Sagittarii	Dark	G.	5-feet Equatoreal	7. 5.27,8	7. 6.28,82	19.41.31,30	G.
24	13	Reappearance of $\ast$ Sagittarii	Bright	X.	Northumb. Equat.	18.21.29,0	18.21.39,78	6.19.28,48	C.
Nov. 25	14	Disappearance of 101 Piscium	Dark	X.	Northumb. Equat.	18.58.53,0	18.59. 3,91	6.56.46,48	C.
27	15	Disappearance of $\eta$ Tauri	Dark	G.	5-feet Equatoreal	21.13.58,0	21.14.11,71	9. 3.40,34	C.
...	16	Reappearance of $\eta$ Tauri	Bright	G.	5-feet Equatoreal	21.14. 3,0	21.14. 7,61	9. 3.36,25	G.
Dec. 18	17	Disappearance of $\rho$ Aquarii	Dark	X.	Northumb. Equat.	19. 9.23,0	19. 9.36,91	6.55.30,04	C.
20	18	Disappearance of $\lambda$ Piscium	Dark	G.	5-feet Equatoreal	22.47.41,9	22.46.53,80	6.28.24,97	G.
...	19	Reappearance of $\lambda$ Piscium	Bright	G.	5-feet Equatoreal	9.20.48,4	9.19.37,18	16.51.32,87	G.
						10.14.48,0	10.13.36,07	17.45.22,91	G.
						3. 1.16,3	2.56.45,64	9. 7. 9,90	G.
						23.36.14,7	23.36.34,89	5.39.40,12	C.
						23.41.26,8	23.36.34,97	5.39.40,20	G.
						0.17.57,5	0.18.17,90	6.21.16,28	C.

N°. 1 and 2. Very exact.

N°. 3. Good: not a second in error.

N°. 4. C's observation a little doubtful: G's good, but taken in an inconvenient posture.

N°. 5. C's observation 'very exact,' G's 'satisfactory.'

N°. 6. G thought that the time he noted anticipated a little the instant of contact. C's observation was considered good.

N°. 7. Very satisfactory. The mean solar time of complete immersion inferred from the mean result of measures of distance of Venus's Limb from the Moon's Limb given in p. [144], is  $18^h.32^m.36^s.21$ , assuming the approach in one second to be  $0''.4176$ , which is the mean of the coefficients of  $t$  in the Final Equation p. [145], and in that derived from this observation.

N°. 8 and 9. C was aware that the first appearance was seen too late: G's observations were both 'pretty good.'

N°. 10. Exact.

N°. 11. The Moon being low and covered with misty cloud, the star was seen very faintly. The actual emergence was probably 2 or 3 seconds earlier. Not visible with the 5-feet Telescope.

N°. 12. Each observer was looking at his time-piece when the occultation occurred, not expecting it so early. G's time is that of last seeing the star; C's is the time of first perceiving it gone. The mean between the two times may therefore be 2" in error.

N°. 13. Seen late. The star had probably emerged 2 or 3 seconds. Not visible with the 5-feet Telescope.

N°. 14. No uncertainty. N°. 15. Excellent, though the star was somewhat faint.

N°. 16. Extremely faint, but seen early. The other occultations of this night were not visible.

N°. 17 and 18. All very good.

N°. 19. Much mist, but pretty good observation. Not visible with the 5-feet Telescope.

Disappearance of  $\rho^e$  Leonis, April 30,  $18^h.1^m.54^s.18 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$234.21.51.45 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$165.0.37.95 + 0.5078 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$86.22.54.14 + 0.2579 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$58.7.82 \times (1 + 0.001 m)$
Moon's Geocentric Semidiameter .....	$15.50.40 \times (1 + 0.001 n)$
Star's Right Ascension in arc .....	$164.42.27.75 + e''$
Star's N.P.D. ....	$87.11.5.70 + f$
Moon's apparent Right Ascension in arc	$164.27.2.75 + 0.4561 t + 0.5098 \tau + 1.0036 x + 0.0006 y - 2.0225 m$
Moon's apparent N.P.D. ....	$87.7.57.10 + 0.2661 t + 0.2587 \tau - 0.0005 x + 1.0043 y + 2.7152 m$
Moon's apparent Semidiameter .....	$15.54.56 - 0.0007 t + 0.9546 n$

Apparent Distance of Star from Moon's centre:

$$15'.42''.92 + 0''.9786 \times \{ + e - 0.4561 t - 0.5098 \tau - 1.0036 x - 0.0006 y + 2.0225 m \} \\ - 0''.1999 \times \{ + 0.2661 t + 0.2587 \tau - 0.0005 x + 1.0043 y + 2.7152 m \} + 0''.2001 f.$$

Final Equation:

$$+ 11''.64 = + 0.9786 e + 0.2001 f - 0.9820 x - 0.2013 y - 0.4988 t - 0.5506 \tau + 1.4365 m - 0.9546 n.$$

Disappearance of  $\omega^1$  Geminorum, May 23,  $8^h.54^m.50^s.33 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$195.5.57.00 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$103.38.42.90 + 0.6706 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$64.39.15.59 + 0.1048 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1.0.20.24 \times (1 + 0.001 m)$
Moon's Geocentric Semidiameter .....	$16.26.55 \times (1 + 0.001 n)$
Star's Right Ascension in arc .....	$103.11.2.25 + e''$
Star's N.P.D. ....	$65.33.43.10 + f$
Moon's apparent Right Ascension in arc	$102.57.45.11 + 0.6775 t + 0.6709 \tau + 0.9996 x + 0.0056 y - 2.4569 m$
Moon's apparent N.P.D. ....	$65.22.53.57 + 0.1701 t + 0.1024 \tau - 0.0045 x + 1.0055 y + 2.6380 m$
Moon's apparent Semidiameter .....	$16.32.03 - 0.0007 t + 0.9920 n$

Apparent Distance of Star from Moon's centre:

$$16'.15''.55 + 0''.6775 \times \{ + e - 0.6775 t - 0.6709 \tau - 0.9996 x - 0.0056 y + 2.4569 m \} \\ - 0''.6665 \times \{ + 0.1701 t + 0.1024 \tau - 0.0045 x + 1.0055 y + 2.6380 m \} + 0''.6677 f.$$

Final Equation:

$$+ 16''.48 = + 0.6775 e + 0.6677 f - 0.6742 x - 0.6740 y - 0.5717 t - 0.5228 \tau - 0.0037 m - 0.9920 n.$$



Reappearance of  $\omega^1$  Geminorum, May 23, 9<sup>h</sup>.40<sup>m</sup>.30<sup>s</sup>.61 +  $t^h + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	206°.32'.53.85 + 15" $\times t$
Moon's Geocentric Right Ascension in arc .....	104°.9'.18.90 + 0,6695 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	64°.44'.6.05 + 0,1071 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	1°.0'.19.85 $\times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	16°.26.44 $\times (1 + 0,001 n)$
Star's Right Ascension in arc .....	103°.11'.2.25 + $e''$
Star's N.P.D. ....	65°.33'.43.10 + $f$ .
Moon's apparent Right Ascension in arc	103°.29'.24.86 + 0,7085 $t$ + 0,6683 $\tau$ + 0,9973 $x$ + 0,0055 $y$ - 2,3877 $m$
Moon's apparent N.P.D. ....	65°.30'.40.37 + 0,1702 $t$ + 0,1046 $\tau$ - 0,0044 $x$ + 1,0036 $y$ + 2,3919 $m$
Moon's apparent Semidiameter .....	16°.30.06 - 0,0007 $t$ + 0,9901 $n$ .

Apparent Distance of Star from Moon's centre:

$$17'.0'',12 + 0'',8954 \times \{-e + 0,7085 t + 0,6683 \tau + 0,9973 x + 0,0055 y - 2,3877 m\} \\ - 0'',1780 \times \{+0,1702 t + 0,1046 \tau - 0,0044 x + 1,0036 y + 2,3919 m\} + 0,1802 f.$$

Final Equation:

$$- 30'',06 = - 0,8954 e + 0,1802 f + 0,8938 x - 0,1737 y + 0,6048 t + 0,5798 \tau - 2,5637 m - 0,9901 n.$$

Disappearance of  $\epsilon$  Geminorum, Sept. 9, 14<sup>h</sup>.22<sup>m</sup>.9<sup>s</sup>.85 +  $t^h + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	24°.35'.27.15 + 15" $\times t$
Moon's Geocentric Right Ascension in arc .....	97°.37'.9.90 + 0,6557 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	63°.59'.42.37 + 0,0771 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	59°.24.42 $\times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	16°.11.27 $\times (1 + 0,001 n)$
Star's Right Ascension in arc .....	98°.32'.59.55 + $e''$
Star's N.P.D. ....	64°.43'.0.90 + $f$ .
Moon's apparent Right Ascension in arc	98°.16'.6.76 + 0,6075 $t$ + 0,6575 $\tau$ + 1,0033 $x$ - 0,0055 $y$ + 2,3447 $m$
Moon's apparent N.P.D. ....	64°.37'.27.06 + 0,0147 $t$ + 0,0807 $\tau$ + 0,0044 $x$ + 1,0086 $y$ + 2,2896 $m$
Moon's apparent Semidiameter .....	16°.19.73 + 0,0007 $t$ + 0,9797 $n$ .

Apparent Distance of Star from Moon's centre:

$$16'.14'',40 + 0'',8492 \times \{+e - 0,6075 t - 0,6575 \tau - 1,0033 x + 0,0055 y - 2,3447 m\} \\ - 0'',3416 \times \{+0,0147 t + 0,0807 \tau + 0,0044 x + 1,0086 y + 2,2896 m\} + 0'',3436 f.$$

Final Equation:

$$+ 5'',33 = + 0,8492 e + 0,3436 f - 0,8535 x - 0,3399 y - 0,5216 t - 0,5859 \tau - 2,7732 m - 0,9797 n.$$

Reappearance of  $\epsilon$  Geminorum, Sept. 9, 15<sup>h</sup>. 20<sup>m</sup>. 46<sup>s</sup>.86 +  $t'$  +  $\tau'$  Greenwich Mean Solar Time.

Right Ascension of Zenith in Arc .....	39°. 17'. 6".60 + $15'' \times t$
Moon's Geocentric Right Ascension in arc .....	98°. 15'. 35.25 + 0,6553 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	64°. 4'. 18.63 + 0,0800 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	59°. 25.74 $\times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	15°. 11.63 $\times (1 + 0,001 n)$
Star's Right Ascension in arc .....	98°. 32'. 59.55 + $e''$
Star's N.P.D. ....	64°. 43'. 0.90 + $f$ .
Moon's apparent Right Ascension in arc	98°. 50'. 33.96 + 0,5686 $t$ + 0,6589 $\tau$ + 1,0060 $x$ - 0,0050 $y$ + 2,1114 $m$
Moon's apparent N.P.D. ....	64°. 38'. 34.17 + 0,0241 $t$ - 0,0835 $\tau$ + 0,0040 $x$ + 1,0109 $y$ + 2,0821 $m$
Moon's apparent Semidiameter .....	16°. 22.21 + 0,0006 $t$ + 0,9822 $n$ .

Apparent Distance of Star from Moon's centre:

$$16''.29'',73 + 0'',8706 \times \{-e + 0,5686t + 0,6589\tau + 1,0060n - 0,0050y + 2,1114m\} \\ - 0'',2685 \times \{+0,0241t + 0,0835\tau + 0,0040x + 1,0109y + 2,0821m\} + 0'',2705f.$$

Final Equation:

$$-7'',52 = -0,8706e + 0,2705f + 0,8747x - 0,2758y + 0,4880t + 0,5512\tau + 1,2791m - 0,9822n.$$

Disappearance of Venus, Sept. 11, 18<sup>h</sup>. 32<sup>m</sup>. 4'.29 +  $t'$  +  $\tau'$  Greenwich Mean Solar Time.

First contact of gibbous Limb.

Right Ascension of Zenith in arc .....	89°. 12'. 36".00 + $15'' \times t$
Moon's Geocentric Right Ascension in arc .....	130°. 45'. 23.55 + 0,6067 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	71°. 47'. 22.43 + 0,2126 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	1°. 0'. 17.54 $\times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	16°. 25.77 $\times (1 + 0,001 n)$
Venus's Geocentric Right Ascension in arc .....	131°. 28'. 59.85 + 0,0495 $\times (t + \tau) + e''$
Venus's Geocentric N.P.D. ....	72°. 23'. 55.57 + 0,0102 $\times (t + \tau) + f$ .
Venus's Horizontal Equatoreal Parallax .....	7,90 $\times (1 + 0,001 m')$
Venus's Semidiameter .....	7,60 $\times (1 + 0,001 n')$
Moon's apparent Right Ascension in arc	131°. 11'. 27.51 + 0,4837 $t$ + 0,6114 $\tau$ + 1,0085 $x$ - 0,0025 $y$ + 1,5773 $m$
Moon's apparent N.P.D. ....	72°. 24'. 14.14 + 0,1834 $t$ + 0,2164 $\tau$ + 0,0022 $x$ + 1,0119 $y$ + 2,2400 $m$
Moon's apparent Semidiameter .....	16°. 37.62 + 0,0005 $t$ + 0,9976 $n$ .
Venus's apparent Right Ascension in arc	131°. 29'. 3.30 + 0,0495 $t$ + 0,0495 $\tau$ + 0,0034 $m' + e''$
Venus's apparent N.P.D. ....	72°. 24'. 0.41 + 0,0102 $t$ + 0,0102 $\tau$ + 0,0048 $m' + f$ .

Moon's apparent Semidiameter + 3'',74  $\times (1 + 0,001 n')$  = Apparent distance of centres =

$$16''.46'',47 + 0'',9532 \times \{e - 0,4542t - 0,5619\tau - 1,0065x + 0,0025y - 1,5773m + 0,0034m'\} \\ + 0'',0144 \times \{+0,1834t + 0,2164\tau + 0,0022x + 1,0119y + 2,2400m\} \\ - 0'',0128 \times \{f + 0,0102t + 0,0102\tau + 0,0048m'\}.$$

Final Equation:

$$-5'',11 = 0,9532e - 0,0128f - 0,9613x + 0,0170y - 0,4119t - 0,5326\tau - 1,4712m - 0,9976n + 0,0032m' - 0,0037n'.$$

Disappearance of Venus, Sept. 11, 18<sup>h</sup>.32<sup>m</sup>.33<sup>s</sup>.41 +  $t^s + \tau^s$  Greenwich Mean Solar Time.  
Complete Immersion.

Right Ascension of Zenith in arc .....	$89^{\circ}.19'.53''.85 + 15'' \times t$
Moon's Geocentric Right Ascension in arc .....	$130^{\circ}.45'.41''.25 + 0,6067 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$71^{\circ}.47'.28''.61 + 0,2126 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1^{\circ}.0'.17''.55 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$16'.25''.77 \times (1 + 0,001 n)$
Venus's Geocentric Right Ascension in arc .....	$131^{\circ}.29'.1''.35 + 0,0495 \times (t + \tau) + e''$
Venus's Geocentric N.P.D. ....	$72^{\circ}.23'.55''.86 + 0,0102 \times (t + \tau) + f.$
Venus's Horizontal Equatoreal Parallax .....	$7,90 \times (1 + 0,001 m')$
Venus's Semidiameter .....	$7,60 \times (1 + 0,001 n')$
Moon's apparent Right Ascension in arc	$131^{\circ}.11'.41''.63 + 0,4837t + 0,6114\tau + 1,0085x - 0,0025y + 1,5737m$
Moon's apparent N.P.D.....	$72^{\circ}.24'.19''.47 + 0,1834t + 0,2164\tau + 0,0022x + 1,0120y + 2,2392m$
Moon's apparent Semidiameter.....	$16'.37''.64 + 0,0005t + 0,9976n.$
Venus's apparent Right Ascension in arc	$131^{\circ}.29'.4''.80 + 0,0495t + 0,0495\tau + 0,0034m' + e''$
Venus's apparent N.P.D.....	$72^{\circ}.24'.0''.70 + 0,0102t + 0,0102\tau + 0,0048m' + f.$

Difference of apparent Semidiameters = Apparent distance of centres =

$$16'.34''.53 + 0'',9532 \times \{e - 0,4342t - 0,5619\tau - 1,0085x + 0,0025y - 1,5737m + 0,0034m'\} \\ + 0'',0197 \times \{ + 0,1834t + 0,2164\tau + 0,0022x + 1,0120y + 2,2392m \} \\ - 0'',0181 \times \{f + 0,0102t + 0,0102\tau + 0,0048m'\}.$$

Final Equation:

$$-4'',49 = 0,9532e - 0,0181f - 0,9613x + 0,0223y - 0,4109t - 0,5315\tau - 1,4559m - 0,9976n + 0,0032m' + 0,0076n'.$$

Reappearance of Venus, Sept. 11, 19<sup>h</sup>.41<sup>m</sup>.2<sup>s</sup>.58 +  $t^s + \tau^s$  Greenwich Mean Solar Time.  
First appearance of gibbous Limb.

Right Ascension of Zenith in arc .....	$106^{\circ}.30'.0''.30 + 15'' \times t$
Moon's Geocentric Right Ascension in arc .....	$131^{\circ}.27'.11''.40 + 0,6053 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$72^{\circ}.2'.6''.80 + 0,2148 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1^{\circ}.0'.18''.18 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$16'.25''.93 \times (1 + 0,001 n)$
Venus's Geocentric Right Ascension in arc .....	$131^{\circ}.32'.24''.60 + 0,0495 \times (t + \tau) + e''$
Venus's Geocentric N.P.D. ....	$72^{\circ}.24'.37''.34 + 0,0102 \times (t + \tau) + f$
Venus's Horizontal Equatoreal Parallax .....	$7,90 \times (1 + 0,001 m')$
Venus's Semidiameter .....	$7,60 \times (1 + 0,001 n')$
Moon's apparent Right Ascension in arc	$131^{\circ}.43'.46''.81 + 0,4560t + 0,6113\tau + 1,0104x - 0,0016y + 1,0057m$
Moon's apparent N.P.D.....	$72^{\circ}.37'.22''.23 + 0,1976t + 0,2185\tau + 0,0014x + 1,0136y + 2,1449m$
Moon's apparent Semidiameter.....	$16'.39''.40 + 0,0003t + 0,9994n.$
Venus's Right Ascension in arc .....	$131^{\circ}.32'.26''.70 + 0,0495t + 0,0495\tau + 0,0022m' + e''$
Venus's apparent N.P.D.....	$72^{\circ}.24'.41''.94 + 0,0102t + 0,0102\tau + 0,0046m' + f.$

Moon's Apparent Semidiameter -  $5'',09 \times (1 + 0,001 n') =$  Apparent distance of centres =

$$16'.39''.42 + 0'',6192 \times \{-e + 0,4065t + 0,5618\tau + 1,0104x - 0,0016y + 1,0057m - 0,0022m'\} \\ + 0'',7611 \times \{ + 0,1976t + 0,2185\tau + 0,0014x + 1,0136y + 2,1449m \} \\ - 0'',7605 \times \{f + 0,0102t + 0,0102\tau + 0,0046m'\}.$$

Final Equation:

$$-5'',11 = -0,6192e - 0,7605f + 0,6267x + 0,7615y + 0,3940t + 0,5064\tau + 2,2552m - 0,9994n - 0,0049m' + 0,0051n'.$$

Reappearance of Venus, Sept. 11, 19<sup>h</sup>. 41<sup>m</sup>. 31<sup>s</sup>. 30 +  $t + \tau$  Greenwich Mean Solar Time.  
Complete emersion.

Right Ascension of Zenith in arc .....	$106.37.12,30 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$131.27.28,80 + 0,6053 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$72.2.12,97 + 0,2148 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$1.0.18,18 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$16.25,93 \times (1 + 0,001 n)$
Venus's Geocentric Right Ascension in arc .....	$131.32.25,95 + 0,0495 \times (t + \tau) + e''$
Venus's Geocentric N.P.D. ....	$72.24.37,62 + 0,0102 \times (t + \tau) + f$
Venus's Horizontal Equatoreal Parallax .....	$7,90 \times (1 + 0,001 m')$
Venus's Semidiameter .....	$7,60 \times (1 + 0,001 n')$

Moon's apparent Right Ascension in arc	$131.43.59,91 + 0,4562t + 0,6113\tau + 1,0104x - 0,0016y + 1,0014m$
Moon's apparent N.P.D. ....	$72.37.27,91 + 0,1978t + 0,2185\tau + 0,0014x + 1,0137y + 2,1446m$
Moon's apparent Semidiameter.....	$16.39,41 + 0,0003t + 0,9994n$
Venus's apparent Right Ascension in arc	$131.32.28,05 + 0,0495t + 0,0495\tau + 0,0021m' + e''$
Venus's apparent N.P.D.....	$72.24.42,21 + 0,0102t + 0,0102\tau + 0,0046m' + f.$

Sum of Apparent Semidiameters = Apparent distance of centres =

$$16'.50'',83 + 0'',6226 \times \{ -e + 0,4067t + 0,5618\tau + 1,0104x - 0,0016y + 1,0014m - 0,0021m' \} \\ + 0'',7578 \times \{ + 0,1978t + 0,2185\tau + 0,0014x + 1,0137y + 2,1446m \} \\ - 0'',7572 \times \{ + f + 0,0102t + 0,0102\tau + 0,0046m' \}.$$

Final Equation :

$$-3'',82 = -0,6226e - 0,7572f + 0,6301x + 0,7672y + 0,3951t + 0,5076\tau + 2,2487m - 0,9994n - 0,0048m' - 0,0076n'.$$

Disappearance of  $\gamma$  Ophiuchi, Sept. 21, 6<sup>h</sup>. 19<sup>m</sup>. 28<sup>s</sup>. 48 +  $t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$273.24.56,70 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$258.24.18,15 + 0,5707 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$116.52.33,39 + 0,0104 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$55.4,78 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter.....	$15.0,57 \times (1 + 0,001 n)$
Star's Right Ascension in arc.....	$258.21.14,55 + e''$
Star's N.P.D. ....	$117.59.0,20 + f.$

Moon's apparent Right Ascension in arc	$258.13.5,59 + 0,4170t + 0,5768\tau + 1,0107x - 0,0017y - 0,6797m$
Moon's apparent N.P.D.....	$117.45.57,26 - 0,0092t + 0,0112\tau + 0,0014x + 1,0024y + 3,2116m$
Moon's apparent Semidiameter.....	$15.2,89 - 0,0002t + 0,9998n.$

Apparent distance of Star from Moon's centre :

$$14'.54'',32 + 0'',4273 \times \{ + e - 0,4170t - 0,5768\tau - 1,0107x + 0,0017y + 0,6797m \} \\ - 0'',8757 \times \{ - 0,0092t + 0,0112\tau + 0,0014x + 1,0024y + 3,2116m \} + 0'',8751f.$$

Final Equation :

$$+ 8'',57 = + 0,4273e + 0,8751f - 0,4331x - 0,8771y - 0,1699t - 0,2563\tau - 2,5220m - 0,9929n.$$

Reappearance of  $\gamma$  Ophiuchi, Sept. 21,  $6^h.56^m.46^s.48 + t^s + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$284.45.58,65 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$258.45.34,50 + 0,5702 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$116.52.54,89 + 0,0089 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$55.3,94 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$15.0,33 \times (1 + 0,001 n)$
Star's Right Ascension in arc.....	$258.21.14,55 + e''$
Star's N.P.D. ....	$117.59.0,20 + f.$
Moon's apparent Right Ascension in arc	$258.28.47,31 + 0,4261t + 0,5759\tau + 1,0100x - 0,0025y - 1,0173m$
Moon's apparent N.P.D. ....	$117.45.22,97 - 0,0204t + 0,0101\tau + 0,0020x + 1,0020y + 3,1535m$
Moon's apparent Semidiameter.....	$15.2,19 - 0,0003t + 0,9022n.$

Apparent Distance of Star from Moon's center:

$$15'.9'',98 + 0'',3889 \times \{ -e + 0,4261t + 0,5759\tau + 1,0100x - 0,0025y - 1,0173m \} \\ - 0'',8983 \times \{ -0,0204t + 0,0101\tau + 0,0020x + 1,0020y + 3,1535m \} + 0'',8979f.$$

Final Equation :

$$- 7'',79 = - 0,3889e + 0,8979f + 0,3910x - 0,9011y + 0,1843t + 0,2149\tau - 3,2284m - 0,9022n.$$

Disappearance of  $\psi$  Sagittarii, Sept. 23,  $9^h.3^m.38^s.30 + t^s + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$318.32.24,90 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$286.32.4,65 + 0,5334 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$114.35.31,65 - 0,0965 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$54.16,23 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$14.47,29 \times (1 + 0,001 n)$
Star's Right Ascension in arc .....	$286.27.50,40 + e''$
Star's N.P.D. ....	$115.31.24,10 + f.$
Moon's apparent Right Ascension in arc	$286.12.28,74 + 0,4021t + 0,5385\tau + 1,0091x - 0,0026y - 1,1866m$
Moon's apparent N.P.D. ....	$115.26.11,77 - 0,1290t - 0,0955\tau + 0,0022x + 1,0020y + 3,0454n.$
Moon's apparent Semidiameter.....	$14.49,23 - 0,0003t + 0,8892n.$

Apparent Distance of Star from Moon's center:

$$14'.48'',71 + 0'',8451 \times \{ +e - 0,4021t - 0,5385\tau - 1,0091x + 0,0026y + 1,1866m \} \\ - 0'',3523 \times \{ -0,1290t - 0,0955\tau + 0,0022x + 1,0020y + 3,0454m \} + 0'',3505f.$$

Final Equation :

$$+ 0'',52 = + 0,8451e + 0,3505f - 0,8536x - 0,3508y - 0,2941t - 0,4214\tau - 0,0701m - 0,8892n.$$

Reappearance of \* Sagittarii, Sept. 24, 6<sup>h</sup>. 55<sup>m</sup>. 30<sup>s</sup>.04 +  $\ell$  +  $\tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in Arc .....	287. 24. 13.65 + 15" $\times t$
Moon's Geocentric Right Ascension in arc .....	297. 57. 49.80 + 0.5120 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	112. 3. 35.93 - 0.1342 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	54. 9.44 $\times (1 + 0.001 m)$
Moon's Geocentric Semidiameter .....	14. 45.50 $\times (1 + 0.001 n)$
Star's Right Ascension in arc .....	298. 0. 8.70 + $e''$
Star's N.P.D. ....	113. 9. 57.10 + $f$ .
Moon's apparent Right Ascension in arc	298. 4. 28.40 + 0.3618 $t$ + 0.5172 $\tau$ + 1.0104 $x$ + 0.0008 $y$ + 0.4027 $m$
Moon's apparent N.P.D. ....	112. 55. 34.11 - 0.1246 $t$ - 0.1351 $\tau$ - 0.0007 $x$ + 1.0039 $y$ + 3.1305 $m$
Moon's apparent Semidiameter.....	14. 48.09 + 0.0001 $t$ + 0.8891 $n$ .

Apparent Distance of Star from Moon's centre:

$$14'. 55'', 47 + 0'', 2456 \times \{-e + 0.3618t + 0.5172\tau + 1.0104x + 0.0008y + 0.4027m\} \\ - 0'', 9639 \times \{-0.1246t - 0.1351\tau - 0.0007x + 1.0039y + 3.1305m\} + 0'', 9637f.$$

Final Equation:

$$- 6'', 38 = - 0.2456e + 0.9637f + 0.2488x - 0.9675y + 0.2089t + 0.2573\tau - 2.9186m - 0.8891n.$$

Disappearance of 101 Piscium, Nov. 25, 6<sup>h</sup>. 28<sup>m</sup>. 24<sup>s</sup>.97 +  $\ell$  +  $\tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	341. 43. 27.00 + 15" $\times t$
Moon's Geocentric Right Ascension in arc .....	21. 12. 33.30 + 0.5237 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	75. 38. 7.88 - 0.2099 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	57. 2.32 $\times (1 + 0.001 m)$
Moon's Geocentric Semidiameter.....	15. 32.55 $\times (1 + 0.001 n)$
Star's Right Ascension in arc .....	21. 50. 11.70 + $e''$
Star's N.P.D. ....	76. 8. 39.80 + $f$ .
Moon's apparent Right Ascension in arc	21. 35. 43.78 + 0.4063 $t$ + 0.5234 $\tau$ + 1.0081 $x$ - 0.0017 $y$ + 1.4018 $m$
Moon's apparent N.P.D. ....	76. 15. 18.68 - 0.2350 $t$ - 0.2114 $\tau$ + 0.0016 $x$ + 1.0109 $y$ + 2.2562 $m$
Moon's apparent Semidiameter.....	15. 42.71 + 0.0004 $t$ + 0.9427 $n$ .

Apparent Distance of Star from Moon's centre:

$$15'. 32'', 48 + 0'', 8780 \times \{+e - 0.4063t - 0.5234\tau - 1.0081x + 0.0017y - 1.4018m\} \\ + 0'', 4283 \times \{-0.2350t - 0.2114\tau + 0.0016x + 1.0109y + 2.2562m\} - 0'', 4273f.$$

Final Equation:

$$+ 10'', 23 = + 0.8780e - 0.4273f - 0.8844x + 0.4345y - 0.4578t - 0.5545\tau - 0.2645m - 0.9427n.$$

Disappearance of  $\eta$  Tauri, Nov. 27, 16<sup>h</sup>.51<sup>m</sup>.32<sup>s</sup>.87 +  $t'$  +  $\tau'$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	139°.54'.17.70 + 15" $\times t$
Moon's Geocentric Right Ascension in arc .....	54°.54'.59.70 + 0.6321 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	65°.46'.46.05 - 0.1117 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	58°.54.52 $\times (1 + 0.001 m)$
Moon's Geocentric Semidiameter .....	16°.3.14 $\times (1 + 0.001 n)$
Star's Right Ascension in arc .....	54°.32'.2.55 + $e''$
Star's N.P.D. ....	66°.23'.6.80 + $f$ .
Moon's apparent Right Ascension in arc	54°.15'.26.98 + 0.6189 $t$ + 0.6321 $\tau$ + 1.0009 $x$ + 0.0052 $y$ - 2.3749 $m$
Moon's apparent N.P.D. ....	66°.28'.4.50 - 0.0519 $t$ - 0.1151 $\tau$ - 0.0042 $x$ + 1.0062 $y$ + 2.4989 $m$
Moon's apparent Semidiameter .....	16°.9.19 - 0.0007 $t$ + 0.9692 $n$ .

Apparent Distance of Star from Moon's centre:

$$15'.59''.82 + 0''.8714 \times \{ + e - 0.6189 t - 0.6321 \tau - 1.0009 x - 0.0052 y + 2.3749 m \} \\ + 0''.3111 \times \{ - 0.0519 t - 0.1151 \tau - 0.0042 x + 1.0062 y + 2.4989 m \} - 0''.3093 f.$$

Final Equation:

$$+ 9''.37 = + 0.8714 e - 0.3093 f - 0.8735 x + 0.3085 y - 0.5547 t - 0.5866 \tau + 2.8469 m - 0.9692 n.$$

Reappearance of  $\eta$  Tauri, Nov. 27, 17<sup>h</sup>.45<sup>m</sup>.22<sup>s</sup>.91 +  $t''$  +  $\tau''$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	153°.24'.1.05 + 15" $\times t$
Moon's Geocentric Right Ascension in arc .....	55°.29'.3.60 + 0.6336 $\times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	65°.40'.48.90 - 0.1094 $\times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	58°.56.01 $\times (1 + 0.001 m)$
Moon's Geocentric Semidiameter .....	16°.3.54 $\times (1 + 0.001 n)$
Star's Right Ascension in arc .....	54°.32'.2.55 + $e''$
Star's N.P.D. ....	66°.23'.6.80 + $f$ .
Moon's apparent Right Ascension in arc	54°.49'.47.75 + 0.6577 $t$ + 0.6319 $\tau$ + 0.9983 $x$ + 0.0052 $y$ - 2.3519 $m$
Moon's apparent N.P.D. ....	66°.25'.22.79 - 0.0497 $t$ - 0.1124 $\tau$ - 0.0042 $x$ + 1.0040 $y$ + 2.6897 $m$
Moon's apparent Semidiameter .....	16°.7.50 - 0.0007 $t$ + 0.9675 $n$ .

Apparent Distance of Star from Moon's centre:

$$16'.25''.57 + 0''.9074 \times \{ - e + 0.6577 t + 0.6319 \tau + 0.9983 x + 0.0052 y - 2.3519 m \} \\ + 0''.1390 \times \{ - 0.0497 t - 0.1124 \tau - 0.0042 x + 1.0040 y + 2.6897 m \} - 0''.1370 f.$$

Final Equation:

$$- 18''.07 = - 0.9074 e - 0.1370 f + 0.9053 x + 0.1443 y + 0.5906 t + 0.5578 \tau - 1.7602 m - 0.9675 n.$$



Disappearance of  $\rho$  Aquarii, Dec. 18,  $9^h.7^m.9^s.90 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$44.11.24,60 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$333.19.7,35 + 0,4504 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$98.3.1,64 - 0,2107 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$54.9,17 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$14.45,39 \times (1 + 0,001 n)$
Star's Right Ascension in arc.....	$332.58.16,65 + e''$
Star's N.P.D. ....	$98.36.41,70 + f.$
Moon's apparent Right Ascension in arc	$332.47.17,79 + 0,4048 t + 0,4521 \tau + 1,0031 x - 0,0013 y - 1,9156 m$
Moon's apparent N.P.D. ....	$98.46.46,10 - 0,2314 t - 0,2104 \tau + 0,0014 x + 1,0012 y + 2,6264 m$
Moon's apparent Semidiameter.....	$14.46,52 - 0,0006 t + 0,8865 n.$

Apparent Distance of Star from Moon's centre:

$$14'.45'',52 + 0'',7246 \times \{ + e - 0,4048 t - 0,4521 \tau - 1,0031 x + 0,0013 y + 1,9156 m \} \\ + 0'',6799 \times \{ - 0,2314 t - 0,2104 \tau + 0,0014 x + 1,0012 y + 2,6264 m \} - 0'',6803 f.$$

Final Equation:

$$- 2'',00 = + 0,7246 e - 0,6803 f - 0,7259 x + 0,6817 y - 0,4500 t - 0,4706 \tau + 3,1737 m - 0,8865 n.$$

Disappearance of  $\lambda$  Piscium, Dec. 20,  $5^h.39^m.40^s.20 + t + \tau$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$354.8.44,55 + 15 \times t$
Moon's Geocentric Right Ascension in arc .....	$353.16.23,55 + 0,4517 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$88.17.2,94 - 0,2243 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$54.49,23 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$14.56,31 \times (1 + 0,001 n)$
Star's Right Ascension in arc.....	$353.30.0,90 + e''$
Star's N.P.D. ....	$89.5.11,90 + f.$
Moon's apparent Right Ascension in arc	$353.15.52,48 + 0,3078 t + 0,4562 \tau + 1,0000 x - 0,0000 y - 0,0314 m$
Moon's apparent N.P.D.....	$88.59.34,52 - 0,2266 t - 0,2266 \tau - 0,0000 x + 1,0101 y + 2,5775 m$
Moon's apparent Semidiameter.....	$15.5,44 + 0,0000 t + 0,9054 n.$

Apparent Distance of Star from Moon's centre:

$$15'.12'',93 + 0'',9290 \times \{ + e - 0,3078 t - 0,4562 \tau - 1,0000 x + 0,0314 m \} \\ - 0'',3696 \times \{ - 0,2266 t - 0,2266 \tau + 1,0101 y + 2'',5775 m \} + 0'',3696 f.$$

Final Equation:

$$- 7'',49 = + 0,9290 e + 0,3696 f - 0,9382 x - 0,3733 y - 0,2022 t - 0,3401 \tau - 0,9235 m - 0,9054 n.$$

Reappearance of  $\lambda$  Piscium, Dec. 20,  $6^h.21^m.16^s.28 + t^s + \tau^s$  Greenwich Mean Solar Time.

Right Ascension of Zenith in arc .....	$4.34.28,50 + 15'' \times t$
Moon's Geocentric Right Ascension in arc .....	$353.35.11,55 + 0,4521 \times (t + \tau) + x''$
Moon's Geocentric N.P.D. ....	$88.7.42,97 - 0,2243 \times (t + \tau) + y$
Moon's Horizontal Equatoreal Parallax .....	$54.50,09 \times (1 + 0,001 m)$
Moon's Geocentric Semidiameter .....	$14.56,53 \times (1 + 0,001 n)$
Star's Right Ascension in arc .....	$353.30.0,90 + e''$
Star's N.P.D. ....	$89.5.11,90 + f.$
Moon's apparent Right Ascension in arc	$353.28.42,58 + 0,3108 t + 0,4565 \tau + 1,0097 x + 0,0001 y - 0,3928 m$
Moon's apparent N.P.D.....	$88.50.10,31 - 0,2259 t - 0,2265 \tau - 0,0000 x + 1,0100 y + 2,5728 m$
Moon's apparent Semidiameter.....	$15.5,53 - 0,0001 t + 0,9055 n.$

Apparent Distance of Star from Moon's centre :

$$15'.4'',99 + 0'',0865 \times \{ + e - 0,3108 t - 0,4565 \tau - 1,0097 x - 0,0001 y + 0,3928 m \} \\ - 0'',9963 \times \{ - 0,2259 t - 0,2265 \tau + 1,0100 y + 2,5728 m \} + 0'',9963 f.$$

Final Equation :

$$+ 0'',54 = + 0,0865 e + 0,9963 f - 0,0873 x - 1,0063 y + 0,1983 t + 0,1862 \tau - 2,5293 m - 0,9055 n.$$

HOURLY METEOROLOGICAL OBSERVATIONS MADE AT THE CAMBRIDGE OBSERVATORY  
NEAR THE TIME OF THE AUTUMNAL EQUINOX, 1841.

Day and Hour.	Barom.	Att. Ther.	Ester. Ther.	Direction of Wind.	Strength of Wind 0-6.	Class of Clouds.	Clouds 0-10.	Remarks.
a.	inches.	o	o					
Sept. 20. 18	30,108	56,2	50,7	N. E.	1,2	Nimbi	10	Quite cloudy; much mist in horizon.
19	,106	57,0	51,3	N. E.	1,2	.....	10	... ..
20	,100	58,7	54,7	N. E.	1,2	.....	10	... ..
21	,084	59,7	57,1	E. N. E.	1,2	.....	10	... ..
22	,076	60,0	59,1	E.	1	.....	10	... .. Wind more stiffl.
23	,066	60,7	60,7	E. by N.	1,2	.....	10	... ..
Sept. 21. 0	,052	60,1	62,0	E. by N.	1,2	.....	10	Quite cloudy, but not so densely; less mist
1	,030	62,0	64,4	E. N. E.	1,2	Nimbi and Cumuli	7	Finer; gleams of sunshine.
2	30,010	62,8	65,0	E. by N.	1,2	.....	6	Fine, no perfectly clear blue sky.
3	29,996	63,2	63,4	E. N. E.	2	.....	6	... ..
4	,972	62,7	62,6	N. E. by E.	2	.....	3	Brisk wind and clouds moving rapidly; horizon misty
5	,954	61,8	59,3	E. N. E.	2	Nimbi	4	... ..
6	,950	61,4	57,7	E. by N.	1,2	.....	3	Sky clearer, but horizon clouded.
7	,938	59,7	55,0	E. by N.	1	.....	3	Haze all over sky; clouds in S.W. horizon.
8	,918	58,7	54,3	E. N. E.	1	.....	2	Clouds and haze in S. and W. horizon.
9	,896	57,8	53,2	E. N. E.	1,2	.....	1	... .., otherwise clear
10	,870	57,7	52,4	N. E.	1,2	.....	1	... ..
11	,848	56,8	52,3	N. E.	1,2	.....	0	No clouds - haze about the horizon.
12	,836	56,7	52,6	N. E.	1	.....	0	Hazy horizon - wind more gentle.
13	,820	56,4	51,6	N. E.	1,2	.....	0	Wind brisker - some appearance of cloud in S.W.
14	,784	56,3	51,7	N. E.	1,2	Nimbi	1	Cloudiness forming in W. and S.W.
15	,770	56,3	51,5	N. E. by E.	1	.....	2	Hazy clouds increasing in S.W., S., and S.E.
16	,754	56,7	52,2	E. N. E.	1,2	.....	8	Generally cloudy, with haze.
17	,738	56,5	52,6	E. by N.	1,2	.....	9	... ..
18	,716	57,0	53,7	E. N. E.	1,2	Cirri and Nimbi	8	Generally cloudy, but finer.
19	,716	57,4	54,0	E. by S.	1,2	Nimbi	10	Quite cloudy, with appearance of rain.
20	,712	58,0	54,2	E. S. E.	1,2	.....	10	Very misty - raining steadily - sudden showers since 1 <sup>st</sup> 12 <sup>th</sup>
21	,716	58,3	56,0	E.	1	.....	10	Very watery clouds, but not raining
22	,716	58,8	57,2	E. by S.	1	.....	10	... .. showers during last hour
23	,716	59,2	63,2	E. S. E.	1	.....	9	Rather finer, small patches of blue sky
Sept. 22. 0	,712	59,3	62,8	S.	1	Nimbi and Cumuli	9	... ..
1	,712	59,7	64,2	S. S. W.	1,2	.....	9	... .., some rain at 9 <sup>th</sup> 30 <sup>th</sup>
2	,712	59,7	63,9	S. W.	1,2	Cumuli	4	Sunshine and fine blue sky
3	,704	59,9	64,9	S. W. by S.	1	.....	3	... ..
4	,700	60,4	64,0	S. W. by S.	1,2	Cumuli and Cirri	2	... ..
5	,712	61,7	60,0	S. W. by S.	1,2	.....	1	Misty cloud bank in E. and E. horizon; otherwise clear
6	,712	61,9	59,2	S. W. by S.	1,2	.....	1	... ..
7	,712	59,2	57,6	S. S. W.	1,2	Nimbi	2	Clouds 22 <sup>nd</sup> high in E. and W. horizon; otherwise clear
8	,716	58,6	57,2	S. S. W.	1	.....	6	Clouds pretty well scattered
9	,712	58,2	56,9	S. by W.	1	.....	3	Cloudy - cloudy in E. and S.W.
10	,700	57,7	55,4	S. S. W.	1	.....	2	... .., otherwise clear
11	29,702	58,0	55,0	S. S. W.	1	.....	3	... ..

HOURLY METEOROLOGICAL OBSERVATIONS MADE AT THE CAMBRIDGE OBSERVATORY  
NEAR THE TIME OF THE WINTER SOLSTICE, 1841.

Day and Hour.	Barom.	Att. Ther.	Exter. Ther.	Direction of Wind.	Strength of Wind 0-6.	Class of Clouds.	Clouds 0-10.	Remarks.
A.	Inches.	o	o					
Dec. 20. 18	29,602	33,7	28,3	S. S. W.	1	Nimbi	8	Generally cloudy: soft air.
19	,600	34,0	28,6	S. W.	1	.....	10	Quite cloudy.
20	,614	34,2	28,0	W. S. W.	1	.....	8	Clouds breaking.
21	,638	34,7	26,9	W. by S.	1		1	Clear, except a bank in horizon from S.W. through W. to N.E.
22	,648	35,0	28,5	S. W.	1,2		0	Quite clear, but horizon misty.
23	,658	34,8	29,0	S. W.	1		0	... ..
Dec. 21. 0	,649	35,0	29,5	S. W. to W.	1		0	... ..
1	,644	35,0	31,0	S. W.	1,2	Nimbi	2	Cloudy and misty all round horizon, and higher than before.
2	,642	35,2	31,3	S. W.	1	.....	3	... .. ; mostly in N.W.
3	,650	35,0	32,7	W. S. W.	1	Nimbi and Cumuli	8	Very generally cloudy, especially to the W.
4	,662	35,3	34,2	W. N. W.	1,2	Nimbi	9	... ..
5	,672	35,3	33,5	W. N. W.	1,2	.....	5	Clouds fast disappearing; Moon clear: a dark bank in N.W. horizon.
6	,664	35,1	32,5	S. W.	1,2	.....	9	One or two stars visible: clouds rise from N.W.
7	,658	35,0	34,0	W. S. W.	1,2	.....	9	Patches of clearness in the North.
8	,674	35,6	34,7	W.	2	Nimbi and Cumuli	10	Quite cloudy; Moon barely visible.
9	,678	36,2	35,1	w. n. w. by w.	2	Nimbi	10	Densely clouded.
10	,680	35,9	34,6	W. N. W.	1,2	.....	10	... : a few drops of rain or sleet.
11	,680	35,6	34,3	W. N. W.	1,2	.....	10	Clouds a little broken: some snow or sleet has fallen.
12	,674	35,5	34,5	w. n. w. by w.	2	.....	10	Densely cloudy and dark.
13	,702	34,4	31,3	N. N. W.	2	Cumuli	2	Frosty air. Clear, except a bank about 20° high at its maximum from E. through S. to W.
14	,712	33,0	30,0	N. W.	1		0	Quite clear of clouds, but haze about the horizon.
15	,714	32,3	28,7	W. N. W.	$\frac{1}{2}$		$\frac{1}{4}$	A few stratus near the South horizon.
16	,712	32,4	28,0	w. n. w. by w.	1,2		0	Perfectly clear: frosty.
17	,714	31,8	27,5	W. N. W.	1,2		0	... ..
18	,720	31,5	27,4	W. N. W.	1,2		0	... ..
19	,728	31,4	27,5	W. N. W.	1,2		0	... ..
20	,748	31,1	27,8	W. N. W.	1,2		$\frac{1}{8}$	Very clear and cold. Bank of cloud skirting S.W. horizon.
21	,764	31,2	28,2	w. n. w. by w.	2	Stratus and Cumuli	$\frac{1}{4}$	... , except a bank of fine cloud along S. and S.W. horizon.
22	,778	31,6	29,8	w. n. w. by w.	2	Stratus	$\frac{1}{4}$	... : bank of cloud continues; stretches from S. through W. to N.W.
23	,792	33,0	31,8	W. N. W.	1,2	.....	$\frac{1}{4}$	... ..
Dec. 22. 0	,796	33,4	33,0	w. n. w. by w.	1,2	.....	$\frac{1}{2}$	The cloud bank has risen a little.
1	,800	34,4	34,1	w. n. w. by w.	1,2	Stratus and Nimbi	$\frac{1}{2}$	The clouds are still higher: they are thin and hazy.
2	,804	34,8	33,1	w. n. w. by w.	1,2	Nimbi and Cirri	$\frac{2}{2}$	Very thin clouds generally scattered.
3	,810	35,1	33,1	W. N. W.	1	Stratus and Cirri	4	Stratus from S.E. through S. to N.W., 35° high at its maximum. Fine cirri towards N.E.
4	,832	34,5	32,3	w. n. w. by w.	1	Stratus and Nimbi	7	The clouds spreading all round.
5	,836	34,2	32,3	w. n. w. by w.	1	Nimbi	$9\frac{1}{2}$	Few patches of blue sky: the Moon visible through clouds.
6	,844	34,2	32,1	w. n. w. by w.	$\frac{3}{4}$	.....	$9\frac{3}{4}$	Moon scarcely visible: sky almost entirely clouded.
7	,848	34,2	32,1	w. n. w. by w.	1,2	.....	9	Clearer: white fleecy clouds. Few stars visible.
8	,860	33,8	31,4	w. s. w. by w.	1	.....	3	Much clearer. Fleecy clouds to S.W. and about the Moon: much haze to N.E. Wind variable.
9	,864	33,8	32,0	W. S. W.	1	.....	$9\frac{1}{2}$	Moon just seen through clouds.
10	,870	33,7	32,0	S. W. by W.	1	.....	3	Besides the nimbi, thin hazy cloud.
11	,874	33,9	32,2	S. W.	$\frac{1}{2}$	.....	10	Densely clouded.
12	,868	34,3	32,6	S. W.	1	.....	10	The air is sensibly warmer since the change of direction of the wind.
21	29,834	35,6	36,0	S. W.	2	.....	10	Feeble sunshine through clouds.





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